S. Hrg. 98-911 Pt. 4

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1985

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

NINETY-EIGHTH CONGRESS

SECOND SESSION

ON

H.R. 5653

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1985, AND FOR OTHER PURPOSES

PART 4 (Pages 2005-2743)

NONDEPARTMENTAL WITNESSES

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1985

WEDNESDAY, APRIL 4, 1984

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10 a.m. in room SD–192, Senate Dirksen Office Building, Hon. John C. Stennis presiding.

Present: Senators Stennis, Johnston, Hatfield, and Abdnor; also present: Senator Exon.

NONDEPARTMENTAL WITNESSES

SUBCOMMITTEE PROCEDURE

Senator STENNIS. The subcommittee will now come to order.

We have a busy agenda here for the day. The first set of witnesses to be called will present testimony on the lower Mississippi River navigation projects, Mr. Herbert Haar, assistant executive port director, Port of New Orleans.

Mr. Haar, you come forward and have a seat, please. You have certain additional witnesses with you, is that right? Ask them to come to the table as well.

Mr. HAAR. Yes, sir, Mr. Chairman.

Senator STENNIS. Now, in the absence of the chairman of the subcommittee, Senator Hatfield, I have been asked as a member of the subcommittee to preside over today's session. Senator Hatfield regrets that he cannot be here. However, on his behalf, he is chairman of the full committee and this subcommittee, let me welcome each of you to the hearing today and I want to join in his welcome, too.

We have a large number of witnesses in the course of the day. Therefore, it will take some self-restraint on the part of everyone to hold oral testimony to a minimum in order that all of you who have requested will have an opportunity to testify. So in keeping with the subcommittee's wishes, I ask especially that the detail of their statements that each of you have worked out very carefully be submitted for the record where they will be carefully reviewed. That is the record that the subcommittee will study in determining its judgment and the recommendations for the upcoming year. Also, in this way you will have a careful and detailed record so that anyone who is not present will be able to arrive at an independent judgment. Then if each witness will summarize or highlight the important points in his oral testimony, it will be most helpful.

So again, welcome each of you and we will now proceed with our first witness.

We are glad to have Senator Exon here from the great State of Nebraska. We have some football games but not all. Senator Exon is a valuable Member of our Senate and he will have something more in mind, but he wants to come a little later.

All right. You proceed now in your own way, please.

LOWER MISSISSIPPI RIVER NAVIGATION PROJECTS

STATEMENT OF HERBERT R. HAAR, JR., ASSISTANT EXECUTIVE PORT DIRECTOR, PORT OF NEW ORLEANS

ACCOMPANIED BY:

SAM GIALLANZA, SENIOR VICE PRESIDENT, NEW ORLEANS STEAMSHIP ASSOCIATION

CAPT. DANIEL R. MEYERS, JR., PRESIDENT, ASSOCIATED BRANCH PILOTS FOR PORT OF NEW ORLEANS

Mr. HAAR. Thank you, Mr. Chairman.

Mr. Chairman, I do have a full statement for the record and I will submit it in accordance with your admonition in the beginning for the record. I would like to give a few brief highlights and then use some computer graphics in a quick summary and then ask my two companions to make very brief statements.

Senator STENNIS. All right; you proceed.

Mr. HAAR. Sir, I am Herbert R. Haar, Jr., assistant executive port director of the Port of New Orleans. I am here today to testify on behalf of the board of commissioners of the Port of New Orleans, a unit of local government of the State of Louisiana and neighboring gulf States, the mid-America States, and the Nation as a whole.

PORT GROWTH

Growth commerce on the Mississippi River and tributaries system has been such that tonnages double every 10 to 12 years. Foreign trade means jobs and the Louisiana ports are handling 21.5 percent of the Nation's foreign waterborne trade. In the year 1971 that percentage share was only 9.6 percent.

Sir, I would like to now turn to the red booklet that you have a copy of which contains the computer graphics which will allow us to just hit the highlights of our testimony. The very first part that you have in that with a graph on each side shows the growth of short tons foreign oil-borne commerce from 1973 to 1982 and you can see a high before the current worldwide recession. We are getting up to close to 200 million tons which is off a little bit now in view of the worldwide recession. On the right-hand side of the page you will see that we were hitting at the peak before the recession up over $40 billion worth of trade on the lower Mississippi River in the most recent time period.

GRAIN EXPORTS

Going to the next chart, sir, with the blue bars on it shows the lower Mississippi River grain exports in millions of short tons for the period of 1968 to 1983. As you can see, sir, that has been rapidly growing to a high in 1982 of some 67.2 million tons with a value of around $10 billion.

Sir, turning to the next graph with the blue bars on it you will see the lower Mississippi River grain exports as a percentage of the U.S. total grain export for 1968 to 1983. You will see that has grown and has now reached about 50 percent of the Nation's total grain exports throughout the lower Mississippi River.

COAL EXPORTS

If you go to the next chart, sir, you will see one entitled Lower Mississippi River bituminous coal exports and you see that this grew rapidly during the peak coal boom period in 1981 to a little over 14 million tons and it is now down in the most recent year to just a little over 7 million tons, but we do have a good growth projected in the next 5 years for coal exports out of the lower river.

I am going to skip the next chart on limitations on draft on vessels, because Mr. Giallanza will speak on that, and then the next one on the same subject in a different category and skip to a chart on Port of New Orleans vessel passages on the Mississippi River gulf outlet for the calendar years 1966 to 1983. The purpose of this chart, Senator, is to demonstrate that we have had rapidly increased use of this channel since it was opened back in the sixties and now we have around 1,500 vessel passages a year through that channel.

Senator **Stennis**. Which chart are you on now, please?

Mr. **Haar**. I am on the one Mississippi River gulf outlet, Port of New Orleans vessel passages.

Senator **Stennis**. While we are interrupted, Senator Johnston of Louisiana, a member of this subcommittee, will be here shortly; he is unavoidably detained on another important matter and he will be here shortly.

You proceed.

Mississippi River, Gulf Outlet

Mr. **Haar**. Thank you, Mr. Chairman.

Sir, the next chart is a pie circle graph showing the principal commodities that move on the Mississippi River gulf outlet and below that shows the total tonnage of a little over 5.5 million tons a year and then to the left of that chart shows the economic impact of the tonnage movement on the Mississippi River gulf outlet, direct impact on the community of about $400 million a year.

Sir, the last chart I am going to leave to Mr. Giallanza to discuss during his testimony.

FUNDING REQUEST

In summation, I would like to rapidly go over the amounts that we are requesting on the summary sheet of the front of my testimony and on that we would like to recommend the full capability of $10 million for dredging on the Mississippi River gulf outlet. We have had a number of problems on that channel in recent years which Mr. Giallanza and Captain Meyers will get into later.

The second item on the Mississippi River-Baton Rouge to the gulf, the maintenance dredging and improvement in the past of Southwest Pass, we would like to recommend a total of $45 million under O&M, general for this project and this is an additional amount of $13.4 million over the administration's fiscal year 1985 budget needed for improvement of training work in Southwest Pass.

On the third item on the Mississippi River-Baton Rouge to Gulf of Mexico, bank nourishment, we are recommending that the full Corps of Engineers' capability of $2 million for construction, general be appropriated for this.

On the fourth project for the Mississippi River-gulf outlet, new ship lock, that has been going on for a number of years we do recommend that the $2 million in funding which includes $600,000 for E&D of the new ship lock be provided an additional $1.4 million which is for foreshore protection of the Chalmette Loop Levee of the Lake Pontchartrain hurricane protection project be provided.

On the fifth item, sir, the Mississippi River-ship channel from the gulf to Baton Rouge, this is a deepening of the lower river project and we recommend that Congress appropriate $1 million under general investigations which is the Corps' capability to carry this project forward.

On the final item, sir, which normally is an item that we come in with the Coast Guard appropriation, we recommend that anything the committee can do to use its good offices to influence additional moneys to navigational aids on the gulf outlet—and I think both Mr. Giallanza and Captain Meyers will give you a rationale on that—those moneys be provided so we can provide for increased navigation safety on that channel.

Thank you, Mr. Chairman.

I would like to, if I could, call on Mr. Giallanza now.

Senator STENNIS. Yes.

Well, I want to thank you. You are a former member of the Army Engineers.

Mr. HAAR. Yes, sir. I am a retired colonel and used to be the District Engineer in the Corps.

Senator STENNIS. You are highly responsible and I figure you know what you are talking about. Everybody that testifies in Washington don't always know what they are talking about.

Mr. HAAR. Thank you, sir.

Senator STENNIS. All right.

I just said yesterday in a little talk in a private meeting that the U.S. Army Engineers—talking about the Tennessee-Tombigbee project—I said that perhaps they are the only group in the world that can see and then build, the U.S. Army Engineers, and I believe that.

Mr. HAAR. We have supported that in the Port of New Orleans, that project. We supported that even though some of the people in our State were not of the some mind. We have always supported that and we think that is a good project that is good for the Nation.

Senator STENNIS. We thank you for that, too, very much.

[The statement follows:]

STATEMENT OF HERBERT R. HAAR, JR., ASSISTANT EXECUTIVE PORT DIRECTOR, PORT OF NEW ORLEANS

Summary of testimony of the Board of Commissioners of the Port of New Orleans by Herbert R. Haar, Jr., Assistant Executive Port Director, before the Senate Appropriations Subcommittee on Energy and Water Development on Wednesday, April 4, 1984, in reference to the following projects:

1. MISSISSIPPI RIVER-GULF OUTLET (MR-GO), LA. MAINTENANCE DREDGING
   For FY 85, we strongly recommend $10 million be appropriated by Congress under O&M, Gen. This project is presently in a very deficient maintenance state and it is essential that full project dimensions be attained.

2. MISSISSIPPI RIVER - BATON ROUGE TO THE GULF, MAINTENANCE DREDGING, STABILIZATION
   We recommend Congress appropriate $45 million under O&M, Gen. The additional funding of $13.4 million over the Administration's FY 85 Budget is for minimum essential necessary dredging and for dike and jetty repairs in Southwest Pass.

3. MISSISSIPPI RIVER - BATON ROUGE TO GULF OF MEXICO, LA., BANK NOURISHMENT
   Continued improvement of structures comprising the training works of Southwest Pass could well decrease annual maintenance costs. We recommend that the full Corps of Engineers' capability of $2,000,000 Construction, General, be appropriated by Congress to continue this design effort on bank nourishment, pile dikes and bulkheads.

4. MISSISSIPPI RIVER-GULF OUTLET, LA., NEW SHIP LOCK
   In the budget under Construction, Gen., MR-GO, there is proposed $2,000,000 of which $600,000 is dedicated for E&D of the New Ship Lock and $1.4 million is for foreshore protection of the Chalmette Loop Levee of the Lake Pontchartrain Hurricane Protection Project. We indorse these proposed expenditures but also urge that the additional $1.6 million capability be appropriated for initiating and completing the Citrus Back Levee Foreshore Protection.

5. MISSISSIPPI RIVER-SHIP CHANNEL, GULF TO BATON ROUGE, LA.
   We recommend that this deepening project be expedited in order to hasten receipt of enormous benefits that will materialize. We recommend that Congress appropriate $1.0 million under General Investigations, an amount equal to the $1.0 million Corps' capability.

6. ADDITIONAL NAVIGATION AIDS
   For improved operating efficiency and safety, we request an increased level of funding to the Coast Guard for navigations aids for the MRGO.

Mr. Chairman:

I am Herbert R. Haar, Jr., Assistant Executive Port Director of the Port of New Orleans. I am here to testify on behalf of the Board of Commissioners of the Port of New Orleans, a unit of local government of the State of Louisiana, on projects of vital interest to the development of Louisiana and neighboring Gulf States, the Mid-America States, and the Nation as a whole.

We in the Port industry share the goals of the Administration and this Congress in reducing budget deficits and ultimately in achieving a balanced budget. We are hopeful that our continuing dialogue and cooperation will ultimately contribute to achieving, on a national basis, those lofty but certainly attainable goals. As we look into the future, we are certain that the port industry will continue to play a dominate role in the economic livelihood of our nation. During the period since World War II the non-federal port interests have invested more than $45 billion in new and improved cargo-handling facilities. This has certainly paid off. In 1981, the total throughput of the U.S. deep draft ocean port system was 1.941 billion short tons of cargo in foreign and coastwise commerce. Of that tonnage, 887 million tons represented cargo moving in U.S. foreign commerce, valued at $318 billion, generating approximately $6 billion in U.S. custom revenues. Imagine the value of the federal investment of a proposed budget, now somewhere in the range of 450 million operations, maintenance and construction dollars allocated to deep draft navigation projects sharing in a return of 6 billion dollars!

Again, I must point out that the government has a very direct interest in assuring the continuous movement of international trade through U.S. ports. We cannot afford to have our channels blocked or restricted in drafts through siltation. Such conditions impact severely on the federal, local, state and private investment. Likewise we must assure ourselves that the necessary infrastructure is in place, efficiently operating and even expanding in order to retain our market share of the world trade.

Our Louisiana deep-draft ports have played an ever-increasing role in the growth of the United States' share of the international markets. In fact, growth of commerce on the Mississippi River and tributaries system has been such that tonnages double every ten to twelve years. Today, inland waterway traffic on the main channels and all tributaries of the Mississippi, Illinois, Missouri, and Ohio Rivers is approximately 363 million tons annually. This magnificent inland waterway system services the foreign trade as well as domestic commerce of the Mid-America Hinterland, which accounts for 51% of the population; 49% of the purchasing power; 53% of the value added manufacturing; and 50% of the employment of the United States. In 1981, Louisiana's deep-draft ports transshipped 190.7 million short tons worth $44.1 billion. Translating that impact to jobs throughout the Mid-America States means that approximately 207,000 jobs were related to foreign, oceangoing trade. The four ports of Louisiana located in the regional port complex stretching from Baton Rouge to the Gulf transshipped approximately 183 million short tons, equating to approximately 195,000 jobs of those 207,000 jobs. Again, foreign trade means jobs--and the Louisiana ports are handling 21.5 percent of the nation's foreign waterborne trade. In the year 1971, that percentage share was only 9.6 percent.

Recently released statistics on grain and coal exports from the lower Mississippi River ports highlight the facts that:

A) The 64.5 million tons of grain exported from these ports in 1982 represents 50 percent of the total of U.S. grain exported in 1982;

B) The 7.7 million tons of bituminous coal exported from these ports in 1982 represents 7.3 percent of the total of U.S. coal exports. The dollar value of the lower Mississippi River exports were 9.7 billion for grain and $411 million for coal. Interestingly,--the grain comes from 17 states and the coal comes from 7 states.

In brief, Louisiana ports are a major industry within the State, and the expenses incurred in the transshipment of foreign-bound or foreign-originated cargo cause major economic impacts well beyond the state into the great Mid-America Hinterland.

Continued growth and development of this four-port complex is essential to the national economy. We strongly feel, however, that this growth is being inhibited by the lack of adequate deep-water channels--55-foot depth--for the larger vessels presently engaged in world commerce. Likewise, there have been frequent occurrences in recent years of less than authorized project depths at the mouth of the Mississippi River resulting from heavy silting in Southwest Pass.

Turning to the Tidewater area of the Port of New Orleans - the portion of the port facilities that are directly connected to the Gulf of Mexico via the 76 mile Mississippi River-Gulf Outlet Channel - there has been an average yearly growth in vessel visitation of over 6% during the period of 1970 to 1980, with over 1500 in 1982. We anticipate even greater growth as new facilities are brought on line. In this essential area of the Port, we estimate that approximately $500 million (public and private funds) have been expended thus far.

A total of 35 percent of the Port of New Orleans general cargo passing over public facilities is handled in the Tidewater (MR-GO) Port Area. The steady growth in ship passages and cargo tonnage is the direct result of construction of public facilities and private terminals in this area of the Port. The most recent cargo statistics published by the U.S. Army Corps of Engineers report 5,571,600 tons of cargo moved through the Mississippi River-Gulf Outlet during 1982, of which 70% represented foreign waterborne commerce and 30% represented domestic coastwise traffic.

The continuation of the economic success of the tidewater area, which generates an estimated 390 million in direct and indirect economic benefits annually, is directly connected to the timely maintenance of the channel. It is economically imperative that adequate funds for maintenance dredging be provided annually. Vessels are having difficulty from bank and bottom reacting forces causing the large vessels to shear from their directed paths. Accordingly, we urge that $10 million be appropriated for the Mississippi River-Gulf Outlet, Operation and Maintenance, General, for the necessary purpose of restoring the channel to project dimensions.

On the subject of channel efficiency and design expectations, we have before the Lower Mississippi River Safety Advisory Committee several recommendations addressing the types, design and locations of navigation aids that, if approved, will, in the opinion of our pilot associations, not only increase the safety of transiting this narrow channel but allow for increased transiting traffic. We are hopeful that the 1985 Coast Guard Navigation Aids budgeted programs are sufficiently funded, and flexible, to respond to unprogrammed recognized needs.

The Port of New Orleans is the number 1 port in the Nation (with a total of foreign and domestic waterborne commerce tonnage of 177 million in 1982). The Port of Baton Rouge located 125 miles upriver is the fifth. Both port complexes are entirely dependent upon timely and adequate dredging of the Southwest Pass to provide access to the Gulf. We are concerned that insufficient funds may be available for maintaining the pass and crossings, assuming from past experiences with spring thaws bringing higher river stages and higher rates of siltation. We strongly recommend that the Administration's proposed budget of $31,588,000 for Operation and Maintenance, General, Mississippi River, Baton Rouge to the Gulf, be increased to include an additional $13,412,000 for necessary dredging of crossings between Baton Rouge and New Orleans and for, specifically, restoration of control works in Southwest Pass and at the Head of Passes, thereby reducing annual dredging requirements in future years. This proposed funding of $45,000,000 is less than the Corps of Engineers' capability of $58,608,000.

Equally important on the lower Mississippi River is the need to continue the efforts in designing various structures comprising the training works of Southwest Pass. These improvements could well decrease annual maintenance costs, and, therefore, we recommend that the full Corps of Engineers' capability of $2,000,000, Construction, General, be appropriated by Congress.

We have long testified for expediting completion of the new lock to connect the Mississippi River and the Mississippi River-Gulf Outlet. We remain steadfast to that position. In the budget before us under Construction, General, Mississippi River-Gulf Outlet -- there is proposed $2,000,000 of which $600,000 is dedicated for Engineering and Design of the New Ship Lock and $1.4 million is for foreshore protection of the Chalmette Loop Levee of the Lake Pontchartrain Hurricane Protection Project. We do indorse these proposed expenditures but also urge that the additional $1.6 million capability be appropriated for initiating and completing the Citrus Back Levee Foreshore Protection.

The State of Louisiana, under the auspices of the Governor's Task Force on Deep Draft Vessel Access to the Lower Mississippi River, has recently completed a comprehensive independent investigation of the feasibility and impact of providing deeper draft access to the Mississippi River from the Gulf of Mexico to the head of deep water navigation at Baton Rouge. This investigation required over one year to complete and cost the State $600,000. These studies evaluated 45 alternative projects including different depths and reaches of channel dredging, as well as a number of projects for topping off large vessels offshore. All of the usual elements of such an analysis were addressed, including engineering feasibility, public and private project costs, cargo forecasts, transportation savings, benefit calculations, and economic and environmental impact assessment. What set this investigation apart from other analysis of navigation projects was the overriding concern to select the optimal project which would be financially acceptable given the likely need for substantial levels of non-federal funding. An analysis of financial feasibility was conducted, addressing such issues as likely federal cost sharing and the ability to finance the non-federal share of project costs through local bond issues and the imposition of user charges. Reflecting the possible need to go to the financial markets for project financing, the projections of cargo volumes and project benefits were made on conservative bases. The studies were comprehensive and far-reaching. Clearly, there is evidenced the need for expediting completion of the Mississippi River-Gulf Outlet Enlargement. We urge Congress to fully fund the Corps to its full capability of $1,000,000 under Authorized Studies, General Investigation.

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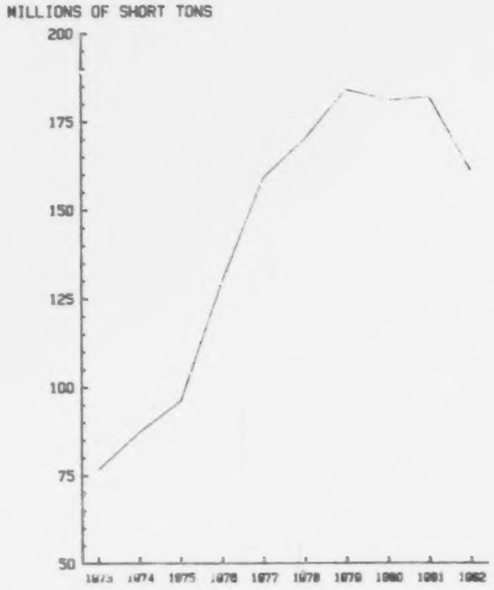
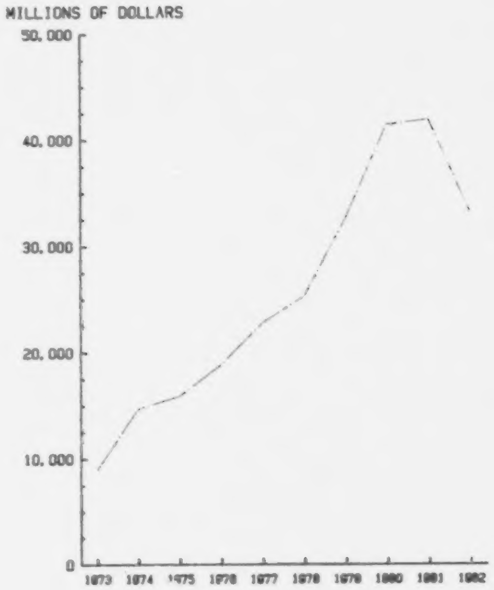
TESTIMONY BY HERBERT R. HAAR, JR.
PORT OF NEW ORLEANS
BEFORE THE ENERGY AND WATER DEVELOPMENT
SUBCOMMITTEES ON APPROPRIATIONS
U.S. SENATE AND HOUSE OF REPRESENTATIVES
APRIL 4, 1984

Lower Mississippi River
Foreign Waterborne Commerce
Calendar Years 1973 - 1982



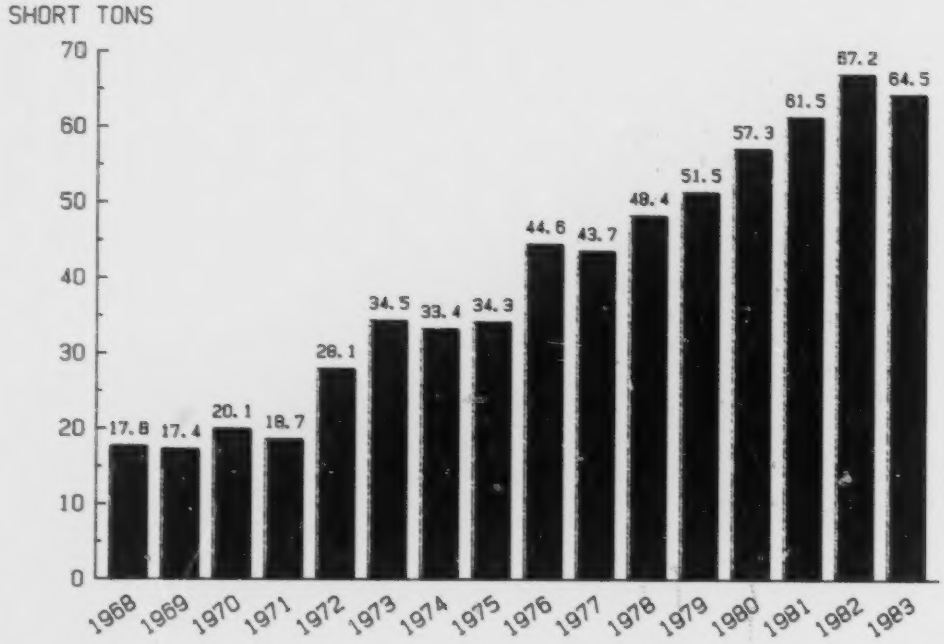
NOTE: The Lower Mississippi River accounted for 21% of the United States' total foreign waterborne commerce tonnage during 1982.



NOTE: Crude petroleum imports via the Lower Mississippi River dropped by 23 million short tons between 1981 and 1982.

SOURCE: U. S. Department of Commerce

Lower Mississippi River Grain Exports
In Millions of Short Tons
Calendar Years 1968 - 1983

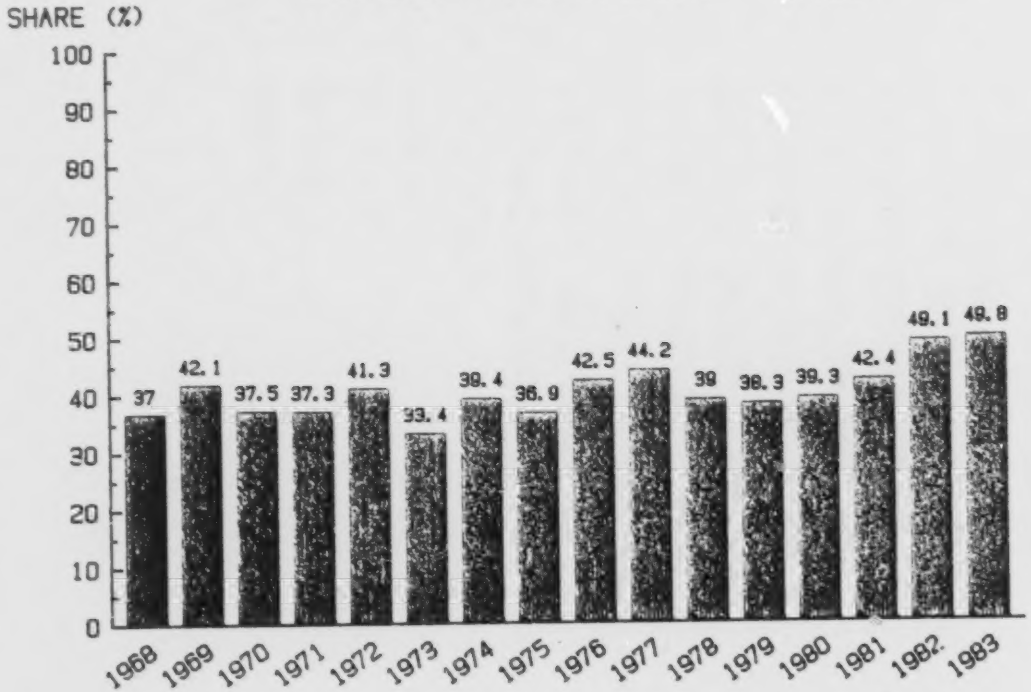


Port of New Orleans
Marketing Division
March 28, 1984

NOTE: Preliminary 1983 value figures indicate grain exports from the Lower Mississippi River totalled $10 billion.

SOURCE: USDA (converted from bushels to tons)

Lower Mississippi River Grain Exports
As a Percentage of the United States *
Calendar Years 1968 - 1983

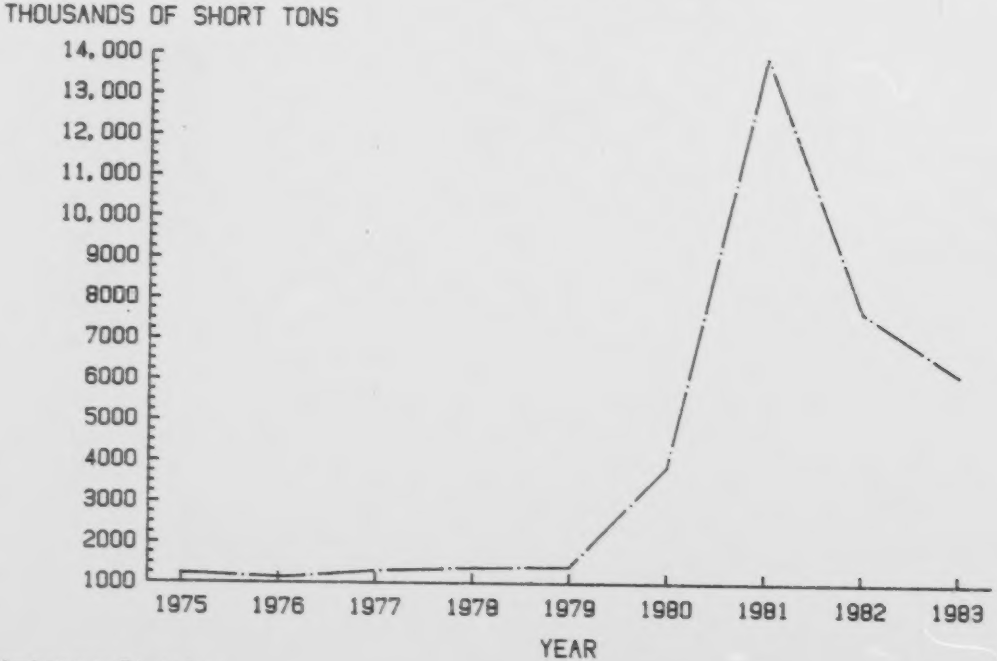


Port of New Orleans
Marketing Division
March 19, 1984

* Market Share Based on Bushels

Source: U. S. Department of Agriculture

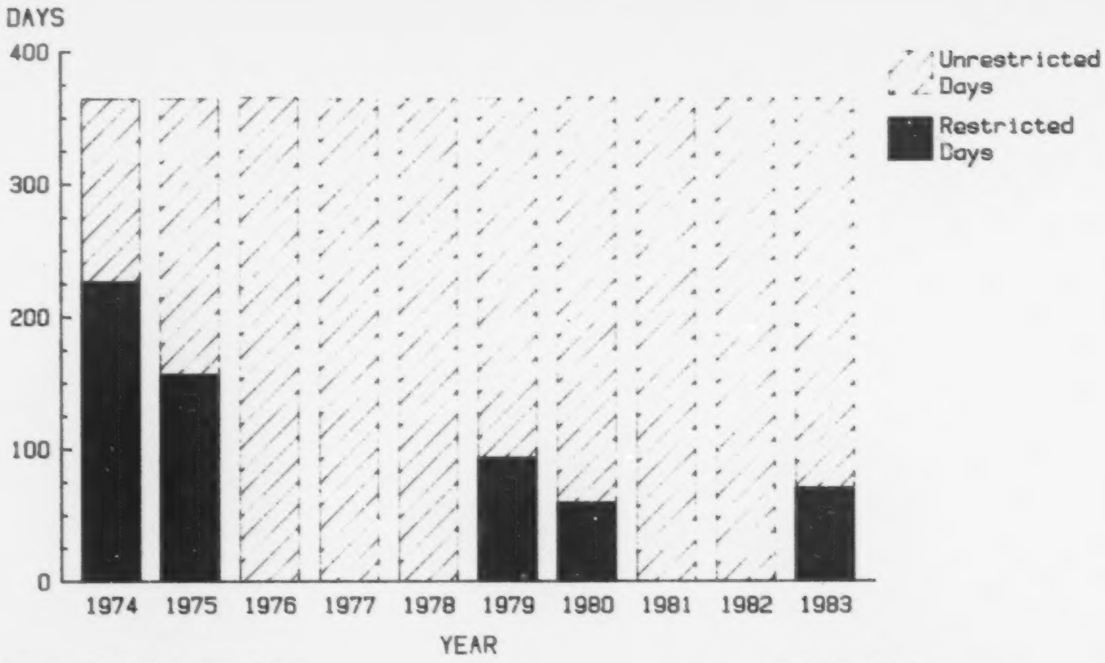
Lower Mississippi River
Bituminous Coal Exports *
1975 - 1983



Marketing Division
Port of New Orleans
March 28, 1984

* Prior to 1981 tonnage includes lignite.
Source: U. S. Department of Commerce (79-83)
U. S. Army Corp of Engineers (75-78)

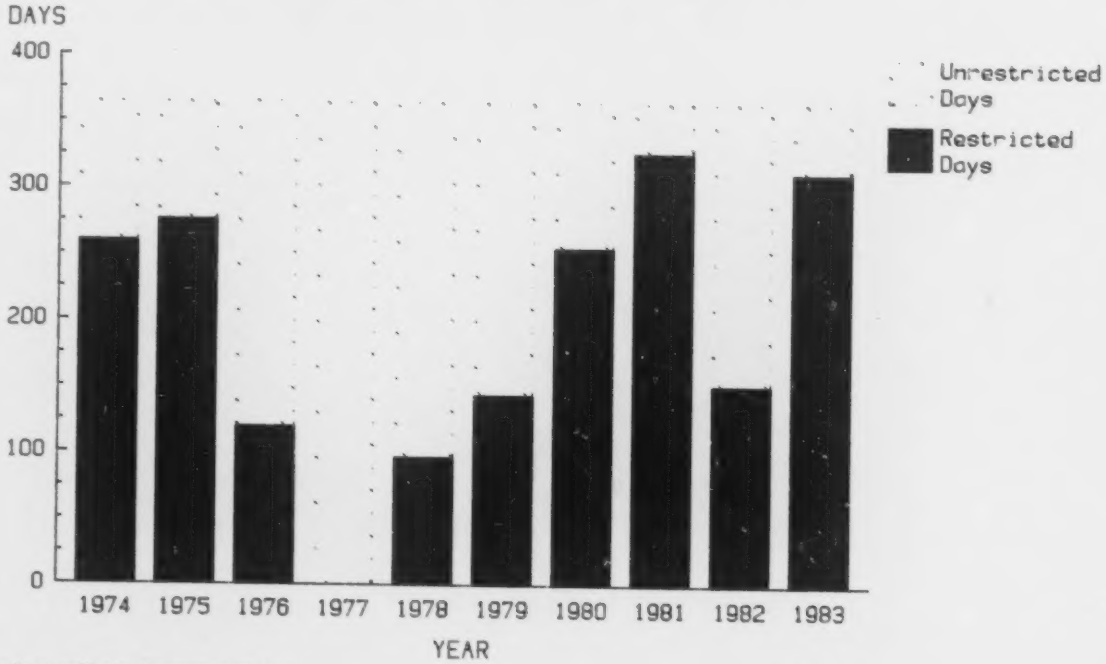
Lower Mississippi River
Days Traffic Restricted for Daytime Transits
Vessels Less than 100,000 DWT



Note: This chart reflects the number of days the Lower Mississippi River was less than its 40' project depth. It does not include the amount of time vessels were restricted for night transit.

Marketing Division
Port of New Orleans
March 27, 1984

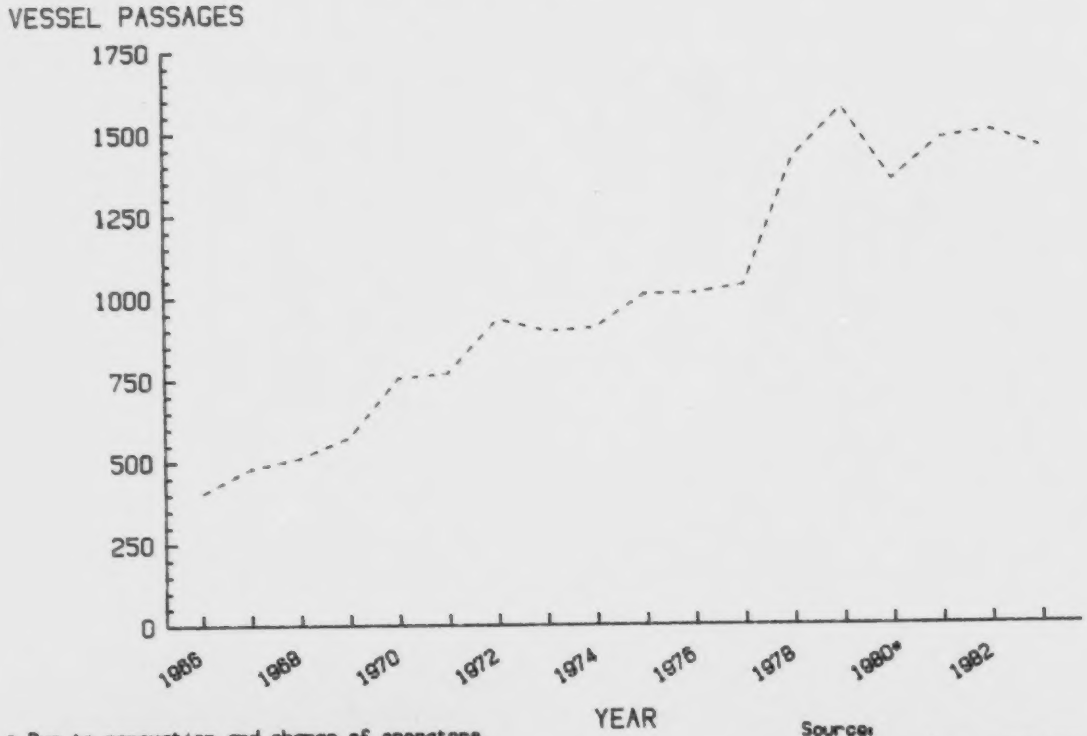
Lower Mississippi River
Days Traffic Restricted for Daytime Transits
Vessels Greater than 100,000 DWT



Note: This chart reflects the number of days the Lower Mississippi River was less than its 40' project depth. It does not include the amount of time vessels were restricted for night transit.

Marketing Division
Port of New Orleans
March 27, 1984

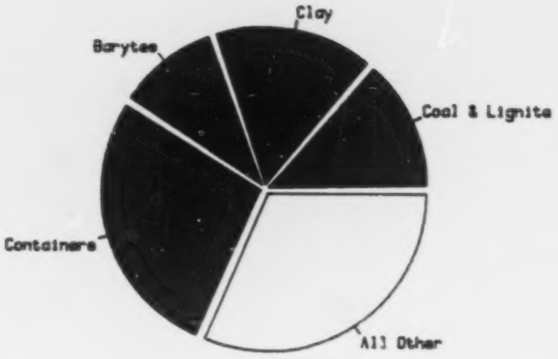
Port of New Orleans Vessel Passages
Mississippi River Gulf Outlet (MRGO)
Calendar Years 1966 - 1983



* Due to renovation and change of operators, operations at the Public Bulk Terminal were temporarily suspended from 9/1/80 thru 4/81.

Source:
U. S. Army Corps of Engineers (vessel data)

Port of New Orleans
Mississippi River Gulf Outlet (MRGO)
1982 Total Waterborne Commerce



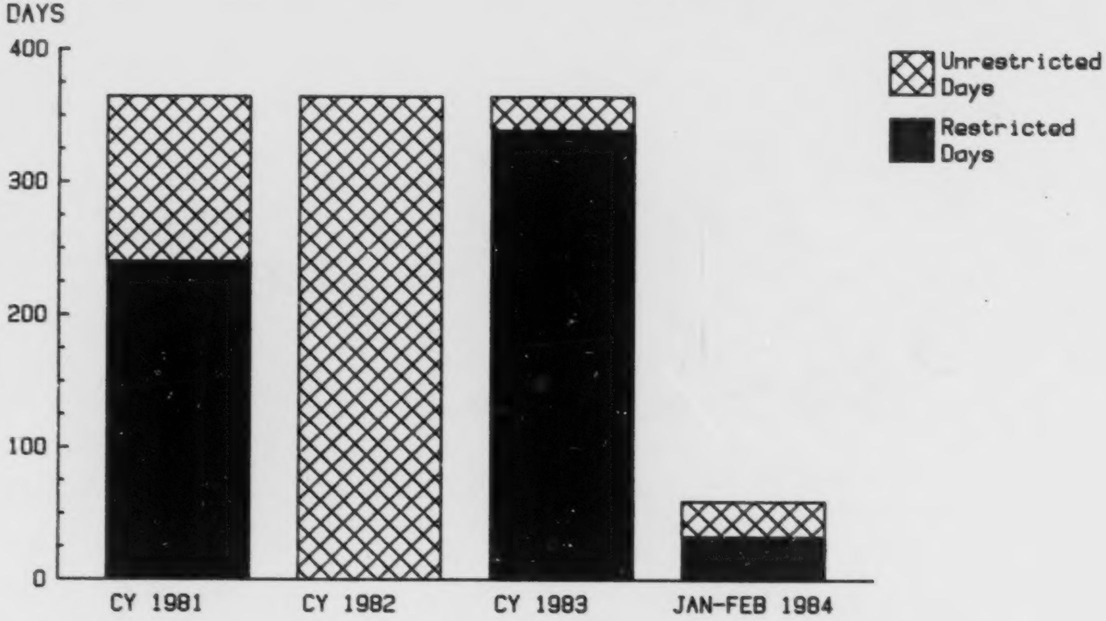
ECONOMIC IMPACT

In 1982, the waterborne commerce handled on the MRGO generated $ 245,159,000 in direct economic impact. Total (direct and indirect) economic impact of the MRGO in 1982 was $ 390,026,000.

Containers	1,531,000 S/T
Clay	920,000 S/T
Coal & Lignite	765,600 S/T
Barytes	597,400 S/T
All Other	1,757,800 S/T
TOTAL..........	5,571,800 S/T

Source: U. S. Army Corps of Engineers
Port of New Orleans (Container Data)
Port of New Orleans (Economic Impact)

Port of New Orleans
Mississippi River Gulf Outlet (MRGO)
Days Traffic Restricted for Daytime Transits



Marketing Division
Port of New Orleans
March 29, 1984

NOTE: This chart reflects the number of days the MRGO was less than its 36' project depth. In addition to draft restrictions, vessel passings have been restricted since September 1980 for vessels of 800' length, 80' beam and 30' draft.

STATEMENT OF SAM GIALLANZA, SENIOR VICE PRESIDENT, NEW ORLEANS STEAMSHIP ASSOCIATION

Senator STENNIS. All right. You introduce whomever you like next.

Mr. HAAR. Sir, I would like to now introduce Mr. Sam Giallanza, the senior vice president of the New Orleans Steamship Association.

Senator STENNIS. All right.

We are glad to have you, sir, and you proceed in your own way.

Mr. GIALLANZA. Thank you, sir.

I have submitted a statement which I would like to have put in the record in its complete form, if you will.

Senator STENNIS. Yes.

[The statement follows:]

STATEMENT OF S. GIALLANZA, SENIOR VICE PRESIDENT, NEW ORLEANS STEAMSHIP ASSOCIATION

1. Repairs to Jetties, Dikes and Maintenance Dredging of Southwest Pass and Maintenance Dredging of the Mississippi River from Baton Rouge to the Gulf and Construction of New Anchorage Area.

   The Lower Mississippi River, from the Gulf to Baton Rouge, ranks as the No. 1 port in the world. If the cargo-carrying capacities of vessels are again restricted by reduced entrance channel depths, this area will rapidly lose its world port status, and this will have a detrimental effect on the National economy. The President's budget appropriation for FY85 is $31.588 million. We urge that $45 million for Operation and Maintenance, General, Mississippi River, Baton Rouge to the Gulf, be appropriated. The amount of $13.412 million over the President's budget would be used for necessary dredging of Southwest Pass and the crossing between New Orleans and Baton Rouge. This small investment will save significant dredging costs in future years. We urge approval of funding in the amount of $2.0 million for Construction, General, Mississippi River, Baton Rouge to the Gulf. This represents the Corps' full capability.

2. The Mississippi River-Gulf Outlet Maintenance Dredging.

   The number of vessels using the Mississippi River-Gulf Outlet has continued to increase. Located on this waterway are the Port of New Orleans' Bulk Handling Plant, the new container facilities, the ro-ro terminal and additional facilities under construction which provide newer cargo handling methods to accomodate the larger ships now serving international trade. It is recommended that the Corps' full capability of $9.5 million be appropriated for Mississippi River-Gulf Outlet, Operation and Maintenance, General.

3. The Mississippi River-Gulf Outlet, Construction, General.

   The planning and design for the urgently needed new ship lock continues. This lock, once in operation, will relieve existing hazardous congestion and costly delays to foreign commerce. It will promote the economic growth and development of water-oriented industries along the Mississippi River and the Mississippi River-Gulf Outlet, thus promoting the future growth of the Port area of New Orleans. It is urged that the Congress provide the $600,000 as requested in the President's budget for FY85 to satisfy the Corps of Engineers' capability for the continuance of the preliminary lock design.

4. Fifty-Five Foot Channel for Lower Mississippi River.

   We recommend that the Corps' full capabilities of $1 million be appropriated to continue this study and preliminary design for this project.

Mr. Chairman:

My name is S. Giallanza. I am Senior Vice President of the New Orleans Steamship Association. Our membership, over sixty steamship owners, operators, agents and stevedores on the Lower Mississippi River, is associated with hundreds of ship owners in international commerce.

I am testifying in behalf of projects vital to the future development of the ports and facilities on the Lower Mississippi River from the Gulf to Baton Rouge. These projects, listed below, have impact on the national level in terms of jobs and the United States' ability to remain competitive in world trade and should be funded as noted below.

1. Repairs to jetties, dikes and maintenance dredging of Southwest Pass. Maintenance dredging of the Mississippi River from Baton Rouge to the Gulf. Enlargement and deepening of the Pilottown Anchorage.
2. Maintenance dredging of the Mississippi River-Gulf Outlet.
3. Continuation of the Design Program of the Mississippi River-Gulf Outlet New Ship Lock.
4. Development of final plans for the Fifty-Five Foot Channel for Lower Mississippi River.

The jobs produced by the commerce carried on this channel show the importance of maintaining project dimensions. The Mississippi River's deepwater ports continue to experience rapid growth. In 1982 (latest figures available), Corps of Engineers' statistics show that 557 million tons of waterborne commerce, 58.2% more than 1973, moved through the Lower Mississippi. Because of shoaling in Southwest Pass (see table on next page), cargo diversion added millions of dollars to operating costs and caused the loss of jobs in our area.

Until 1960, this area was served by one grain elevator; presently, 11 elevators supply grain to vessels. Of the more than 2,100 vessels that annually load millions of tons of grain at these elevators, nearly all are of the larger bulk-carrier class. Many, because of shoaling and/or insufficient project draft at Southwest Pass, are forced to sail with slack holds. During one period, the 39-foot draft restriction for 100,000 deadweight ton vessels caused roughly 122 of these ships to each sail with 3,000 tons less cargo than if the ship could sail at full project depth (assuming vessels had to forgo 250 tons of cargo for each inch of draft lost). The Port has shown that each 900 tons of cargo creates one job, so the cargo lost on these ships costs our economy some 400 jobs. Because of the complex international chartering arrangements, this cargo was not carried on other ships.

If the Lower Mississippi River is to continue as the Country's No. 1 port, we must be able to serve the larger, more efficient vessels. To do so, the entrance to our port, Southwest Pass, must not only be maintained at all times at its authorized project depth, it must be deepened.

In addition to the approximately 64.5 million tons of grain moved in 1983, a 93% increase over the last ten years, millions of tons of petroleum and petroleum products, also carried by large vessels, were moved to and from refineries located on the river between Baton Rouge and the Gulf of Mexico.

The number of vessels that exceed 100,000 deadweight tons calling on the Lower Mississippi River is constantly increasing. There were 431 such vessel calls in 1983, an increase of 77.4% in the past eight years.

We make a special appeal for appropriations in FY85 to avoid in the future the serious silting problems that existed in Southwest Pass in past years. The following data reflects the shoaling in the Pass which has restricted the movement of world commerce through the Lower Mississippi River.

History of Days during which vessels were restricted
to less than Project Depth at Southwest Pass

YEAR	VESSELS UNDER 100,000 DWT	VESSELS 100,000 DWT & OVER
1970	205 Days - 56.2%	205 Days - 56.2%
1971	139 Days - 38.1%	139 Days - 38.1%
1972	0 Days - 0 %	0 Days - 0 %
1973	278 Days - 76.2%	278 Days - 76.2%
1974	219 Days - 60.0%	259 Days - 70.9%
1975	157 Days - 43.0%	182 Days - 49.9%
1976	0 Days - 0 %	120 Days - 32.9%
1977	0 Days - 0 %	0 Days - 0 %
1978	0 Days - 0 %	97 Days - 26.6%
1979	94 Days - 25.8%	182 Days - 49.9%
1980	59 Days - 16.2%	254 Days - 69.6%
1981	0 Days - 0 %	327 Days - 89.6%
1982	0 Days - 0 %	152 Days - 41.6%
1983	71 Days - 19.5%	312 Days - 85.5%

It should be noted that in 1983, after two years of project depth, vessels under 100,000 deadweight tons were again faced with draft restrictions at the entrance to the Mississippi River. During the past 10 years, vessels over 100,000 deadweight tons faced draft restrictions for 1,943 days (over 53% of the time). This does not include the great amount of time these large vessels were restricted to a 35-foot draft for night transits. Such restrictions cause vessels to incur extra cost because of delay time, additional tug expenses, additional pilotage expense, additional launch expenses, etc.

As an example, we made a study of 50 of the many vessels that were unable to load their full cargoes during a period of restriction. These vessels, only a few of the 7,500 that call at this Port area annually, left behind 350,000 tons of foreign commerce valued at more than $50,000,000. On the current market, the value of this cargo would be greatly increased. This tonnage, forced to be withheld from export, deprived this area of millions of dollars in economic benefits. To cite one specific case, during a period of shoaling, a bulk carrier of 122,266 deadweight tons was limited to a loading draft of 36 feet rather than the project depth of 40 feet. This vessel was forced to leave behind 11,328 tons of cargo that had a market value in excess of $1.2 million and would have produced a number of jobs.

We cannot emphasize too strongly that draft restrictions will have a detrimental effect on the future of the Lower Mississippi River Port Facilities and the important Mississippi Valley they serve. The inability to constantly maintain project depth deters charterers and owners from entering into contracts for loading full cargoes of bulk commodities at local port facilities because of the uncertainty of the controlling draft. The uncertainty of channel depths could cause the entire area from the Gulf to Baton Rouge to become a penalty port area.

Since 1974 navigational interests have been urging a very important project in our area—the enlarging and deepening of Pilottown Anchorage. This anchorage is strategically located at the entrance to the Lower Mississippi River Port Complex. Some years ago Congress approved the project and the Corps' study was completed. However, the anchorage has not yet been widened or deepened to 40 feet. During the periods of intense fog we experience, large and/or deeply laden vessels need this anchorage as a safe haven. Without it, these vessels must transit to the Boothville Anchorage—many times with zero visability. This project is vital to navigational safety and we urge you to provide the needed funds.

In addition, funds are needed to have dustpan dredges available to dredge the crossings above the city of New Orleans. These corssings control the draft at 8 of the 11 area grain elevators.

The President's budget for Operations & Maintenance, General, Mississippi River, Baton Rouge to the Gulf is $31.588 million. We recommend an appropriation of $45 million. The additional funds will be used for necessary dredging. We appreciate the need to reduce federal expenditures; however, current investments in this project would result in federal cost savings in the future while creating much-needed jobs now.

We urge approval of the President's budget of $2.0 million for Construction, General, Mississippi River, Baton Rouge to the Gulf.

The growth of the Port of New Orleans depends, in large measure on the Bulk Handling Plant and the Port's container and Ro-Ro facilities, among others, located on the Mississippi River-Gulf Outlet. In 1983, there were 1466 deep draft transits of this channel—up 46% over the past 10 years. This seaway has a project depth of 36 feet. Shoaling has resulted in the loss of project draft. Within the past three years, the controlling depth on this channel has been less than project for 615 days—almost 52% of the time. For safety reasons, transit restrictions apply to vessels with a draft of 30 feet or more. To improve safety on this channel and reduce or eliminate transit restrictions, funds should be appropriated to dredge and maintain a holding area and provide updated and additional navigational aids. In addition, we request that the Congress appropriate $9.5 million for Operations & Maintenance, General, Mississippi River-Gulf Outlet.

The Public Bulk Terminal and the container terminals are located on the Mississippi River-Gulf Outlet, while the grain facilities, many LASH-SEABEE terminals, and the public wharves are located on the Mississippi River. An adequate route between the Mississippi River-Gulf Outlet and the river is essential. The shortest route is an inefficient, antiquated 50-year-old lock with a width of 75 feet and limited to a depth of 30 feet. Its maximum capacity has long been exceeded. The waiting time for passage through the lock at present averages from 8 to 10 hours; however, waiting time on occasion has been in excess of 24 hours.

An adequate ship lock, 150 feet by 1200 feet by 50 feet, has been authorized; and we urge that Congress provide the President's requested $600,000 to support the Corps of Engineers' capability for continuing the preliminary design of this project.

The need to deepen the channel serving the deep water area of Louisiana is underscored by the growth of two export cargoes—grain and coal. In 1960, the first grain elevator was built in New Orleans. By 1983, with 11 elevators and at least 17 mid-stream loading locations, grain exports had grown to 64.5 million tons per year on the Lower Mississippi. This tonnage is 50% of U.S. grain exports. In addition, coal exports increased from 1.25 million tons in 1975 to 6.1 million in 1983. Studies by the Board of Commissioners of the Port of New Orleans predict that exports of grain and coal will reach 150 million and 120 million tons per year, respectively, by the year 1990.

However, these potential levels may only be reached with a 55-foot channel. It is estimated that $4 per ton or more can be saved exporting grain if the channel could accomodate vessels loaded to 55 feet. A savings of $400,000 or more could be realized on just one ship loading 100,000 tons of grain. Brazil, Argentina, Australia, and Canada are becoming more aggressively competitive in the world grain market. It would not be surprising in the future to find America's competitive edge in world grain trade determined solely by the lower transportation costs noted above.

Combined with the projected growth in grain exports is the potential for explosive growth in coal exports. Here, too, is a potential savings in transportation costs to our customers—$6 per ton or more if the channel would allow vessels to load to 55 feet.

The increase in grain and coal exports will have several positive effects on the U.S. economy. Grain, traditionally, has had a positive effect on our balance of payments. The same can be expected of coal exports. But the greatest effect that deepening the channel will have is the creation of new jobs. Based on data from a University of New Orleans study, the increased grain and coal exports through the Lower Mississippi River could result in an additional 35,000 jobs, or more, being created. Based on the impact on the

Lower Mississippi River, the jobs created nationally will be very significant. Because of its tremendous positive impact, the Corps' 8.1-to-1 benefit-cost ratio of this $525 million project may be conservative, especially since growth in coal exports were not included.

In order that the strength and growth of the Mississippi Valley will continue, we urge that Congress appropriate the Corps' full capability of $1.0 million for continuance of the study and preliminary design for this project.

I appreciate the opportunity to appear before the Committee.

Mr. GIALLANZA. I have just a few comments, Senator.

As Mr. Haar said, I am Sam Giallanza, senior vice president of New Orleans Steamship Association. We represent some 60 steamship owners, operators, and stevedores in the port area of New Orleans who, in turn, represent hundreds of carriers in international trade.

PORT GROWTH

I would just like to make a few comments, if I may. The Mississippi River deep-water ports continue to experience rapid growth. In 1982, which is the latest figures that were available to us through the Corps of Engineers, it showed that some 557 million tons of waterborne commerce—that represents an increase of 58.2 percent over 1973 that moved through the lower Mississippi River. Because the showing in Southwest Pass that we have experienced over the years, and we have a chart, for a number of years we have had cargo conversions from the Port of New Orleans, we have had increased costs, naturally, and the loss of jobs. I think that is important to all of us here.

If we are to continue as the country's No. 1 port, we must be able to present larger and more efficient vessels. To do so, the entrance to our port area, Southwest Pass, must be maintained at all times at the project depth. As Colonel Haar said, we have here a great grain exporting port with 64.5 million tons moved from our area in 1983. That is a 93-percent increase over 10 years and, of course, that produces an awful lot of jobs, of cargo, and accounts for one job.

INCREASE IN VESSEL SIZE

We have some large vessels coming in and that seems to be the concept of the maritime industry now—large, efficient, more economical. Last year, we had 431 such vessels and these are vessels in excess of 100,000 deadweight tons that call at the Port of New Orleans. We increase that number each year. In 1982 it was 294 vessels of that size. That is a 47-percent increase over the previous year. When we have restrictions on vessels, we are looking at an awful lot of jobs that were lost to the restrictions.

A vessel of that size, it runs about 3,000 tons for each foot of void we have in the ship due to the draft restrictions and that number of vessels would account for about 1,500 jobs in 1983 if we could have loaded the vessel to 40 feet. We make a special appeal for appropriations in fiscal year 1985 to avoid, in the future, serious surface problems that we have experienced in Southwest Pass.

RESTRICTED CHANNEL DEPTHS

Last year in 1983 after 2 years of project depth vessels under 100,000 deadweight tons were again faced with draft restrictions at the entrance to the Mississippi River, that is Southwest Pass, and I think that reflected in one of the charts that was included in Colonel Haar's testimony and this was in the lower Mississippi River, vessels greater than 100,000 deadweight ton. If you will notice, in 1983 we had quite a number of days on which they were restricted.

Now, these are the big vessels, 100,000 deadweight tons, and we had 312 days out of the year that we had restriction. The only year we didn't have any restriction was back in 1977 and, of course, those were the good years back in 1974 and 1975. We really had some problems, but we do have some showing there again on the big vessels.

We have another chart that shows the days of restrictions on vessels less than 100,000 deadweight tons.

Now in 1981 and 1982, we had no problem. But in 1983 we experienced 71 days where we had some restrictions on vessels of that size. We expect we will have some problems this year because the Galveston gauge that we use to measure the river depths in our area, on February 1, 1984, it read at 4.4 feet. Yesterday, it read 13.4 feet and the prediction of the Corps is within 10 days it will rise to 14.8 feet.

Now, we have the high rivers and we expect the problem with shoaling which this creates in Southwest Pass. So, we are a little bit concerned about this shift. Last year, you know, we had high water for a long time and we were concerned because of the navigational problem. It was a problem for the city of New Orleans in that area because the water was high so long the banks were waterlogged.

Senator STENNIS. Excuse me a minute. You say these restricted days now are 312 days out of the year.

Mr. GIALLANZA. Yes, sir.

Senator STENNIS. That would be restricted because of what?

Mr. GIALLANZA. Well, it is a safety precaution of the pilots that handle vessels in excess of 100,000 deadweight tons—that they shall not transit Southwest Pass if they are loaded more than 39 feet.

Senator STENNIS. And you have there one of the very largest ports in the Nation?

Mr. GIALLANZA. Yes, sir.

Senator STENNIS. By volume?

Mr. GIALLANZA. Yes, sir; and size of ships calling, and dollar value. No. 1 in the country, Senator Stennis.

Senator STENNIS. No. 1 in the Nation.

Mr. GIALLANZA. Yes, sir.

Senator STENNIS. And one of the largest in the world.

Mr. GIALLANZA. Yes, sir.

Senator STENNIS. Is that right?

Mr. GIALLANZA. No. 2 in the world.

Senator STENNIS. No. 2 in the world. All right.

Now, you have an excellent statement there, very impressive. We have a great number of witnesses here. The rest of your statement is in the record. Let's go on to the next witness now.

Mr. HAAR. Senator Stennis, may I just say thanks to the committee.

Mr. GIALLANZA. Thank you, Senator. May I just point out one thing. In my statement last year I advised the committee that due to a severe storm on January 20, 1983, a mud lump was left on the Mississippi River's outlet pass channel and that mud lump was 600 feet by 300 feet by 6 feet. It immediately reduced our draft there from 36 feet to 30 feet. Through the help of this committee in giving us some extra appropriations last year that has been cleaned up and on February 4 of this year we went back to 36 feet. So thank you, sir.

Senator STENNIS. Well, that is fine. All right.

Mr. HAAR. Sir, I would like to ask Captain Meyers to speak very briefly.

Senator STENNIS. All right, you may proceed.

STATEMENT OF DANIEL MEYERS, PRESIDENT, ASSOCIATED BRANCH PILOTS

Mr. MEYERS. Thank you, Mr. Chairman.

Senator STENNIS. What are your main duties in connection with this port?

Mr. MEYERS. I am president of the Associated Branch Pilots and we deal with all of the problems.

Senator STENNIS. You are a pilot, you say?

Mr. MEYERS. Yes, sir, I am a pilot.

Senator STENNIS. That tells the story.

All right. We will put your complete statement in the record.

[The statement follows:]

STATEMENT OF CAPT. D. R. MEYERS, JR., PRESIDENT, ASSOCIATED BRANCH PILOTS

In 1983 my organization made 11,230 transits through Southwest Pass; 2,811 of these transits were in excess of 50,000 deadweight tons. Most of these ships over 50,000 deadweight tons could load in excess of 46 feet and some could load to maximum of 55 feet. There were 431 vessels whose deadweight tonnage exceeded 100,000 deadweight tons. In 1982 there were 294 vessels whose deadweight tonnage exceeded 100,000 tons, an increase of 137 vessels over 100,000 deadweight tons in 1983.

The U.S. Army Corps of Engineers has studied and reported favorably on a deep-draft vessel access to the lower Mississippi River. An independent study contracted for by the State of Louisiana also affirmed the feasibility of the proposed deepening of the channel to 55 feet. The projected increases in efficiency, productivity, and economy are substantial. The project is worthy of the funding necessary.

For many years now the pilottown anchorage has been inadequate. Four years ago the Congress authorized the enlargement and deepening of the anchorage. While the benefits resulting from construction and subsequent maintenance of this anchorage are somewhat intangible and hard to get a handle on, they are tremendous, and the ratio of benefits to cost would necessarily be extremely high. Consequently, we urge that you provide the Corps of Engineers with the funds required to continue work on this project.

The Mississippi River-gulf outlet (MR-GO) is a tidewater channel 75 miles long, 36 feet deep, and 500 feet wide from the Gulf of Mexico to New Orleans, generally parallel to the Mississippi River. Because the channel is relatively narrow (only 500 feet wide) the passing of large ships is hazardous. Members of my organization and the other pilot organizations are fearful and reluctant to take large vessels through the channel unless there is assurance that the waterway is clear and they will not meet another ship moving in the opposite direction. Operating in this fashion causes shippers to pay high demurrage fees and vessels are waiting for the waterway traffic to clear up. We made 1,456 transits in the Mississippi River-gulf outlet in 1983.

Contributing to the problems in the Mississippi River-gulf outlet is the system of aids to navigation presently in use there. Although the present system adequately provides a vessel with information that will enable her to fix her position along the length of the channel, the system is a most inefficient one for providing information enabling vessels underway at reasonable safe speeds to fix their position within the width of the channel. It is essential that a vessel have the latter capability in order to avoid shoal areas and hazards to navigation, and determine her position with relation to the center and sides of the channel. That capability is critically important to large and/or deep-draft vessels operating in narrow channels if they are to safely share the channel with vessels traveling in the same or opposite direction as provided for an required by the rules of the road.

The increasing size of the vessels transiting the MR-GO demands the most exact position fixing information possible within the present system due to the smaller tolerances within which the larger vessels operate, the potential and impace to the economic losses that result from collisions and groundings, and the need to provide the means to make the channel a viable waterway in light of the investment that has been made by the Nation, the port, and the private interests that have settled here and will settle here in the future.

Reconfiguration of the aids to uniform measurements as well as the change in the characteristic of the lights and the change of color of the nonuniform lights so as to lessen the possibility of their giving incorrect positioning information would reduce the inefficiency of the system of aids to navigation presently in use in the MR-GO. Such a rearrangement could have a very positive effect on navigation, safety, and traffic flow in the Mississippi River-gulf outlet. Additional funding will be necessary to accomplish this goal. We recommend and ask that this funding be added to the Coast Guard's budget and earmarked for improvements to the aids to navigation in the MR-GO.

I urge that money be made available for the continued maintenance of the Mississippi River and Mississippi River-gulf outlet channels.

Senator STENNIS. Will you summarize it now as you see fit. We have many witnesses. I am not any busier than any other Senator, this is the meeting I want to do, but I have got to be on the Senate floor at 11 o'clock.

Mr. MEYERS. I will be brief, Senator.

In 1983, my organization made 11,230 transits through Southwest Pass and 2,811 of these transits were in excess of 50,000 deadweight tons. Most of these ships over 50,000 deadweight tons could load in excess of 46 feet and some could load to maximum of 55 feet. There were 431 vessels whose deadweight tonnage exceeded 100,000 deadweight tons. In 1982 there were 294 vessels whose deadweight tonnage exceeded 100,000 tons, an increase of 137 vessels over 100,000 deadweight tons in 1983.

We have a few other problems which result. The other two gentlemen ahead of me have testified on the dredges so I will go to the aids.

The increasing size of the vessels transiting the Mississippi River-gulf outlet demands the most exact position fixing information possible within the present system due to the smaller tolerances within which the larger vessels operate, the potential and impact to the economic losses that result from collisions and groundings, and the need to provide the means to make the channel a viable waterway in light of the investment that has been made by the Nation, the port, and the private interests that have settled here and will settle here in the future.

I urge that money be made available for the continued maintenance of the Mississippi River and Mississippi River- gulf outlet channels.

Mr. Chairman, we thank you for the cooperation you have given us so we can operate these vessels safely.

Senator STENNIS. Well, I thank you, but thanks are not necessary. I look upon my service on the subcommittee which started the next year after I got here with more satisfaction than any other time that I have been here.

Now, the Mississippi River, we brag a little here, drains two-thirds of the continental United States and three provinces in Canada I believe. I live in east-central Mississippi and it does not drain where I like. That is an odd streak of nature, you see, but I want to be a part of the Mississippi drainage area.

Now, let's recognize the Senator from Nebraska, Senator Exon. He is one of our busiest Senators and he has something on his mind.

NEBRASKA WATER RESOURCE PROJECTS

STATEMENT OF HON. JAMES J. EXON, U.S. SENATOR FROM NEBRASKA

Senator EXON. Mr. Chairman, thank you very much. I appreciate the fact that I can sit in with the important Appropriations Committee today. I enjoy my working relationship with you, Mr. Chairman, more than any other Senator during the time that I have had the honor of representing my State in the U.S. Senate.

Mr. Chairman, I have no questions of these particular witnesses. We do have some Nebraska people here on some important matters to Nebraska and I would like to introduce those people from Nebraska.

I might say in that regard, Mr. Chairman, that despite the fact that I was Governor for 8 years and now served here for going on 6 years, I have never been able to satisfy the demand for football tickets at the University of Nebraska. But I want to say publicly to my Nebraskan cadre here that if you want tickets to see Mississippi State play, I can arrange that. [Laughter.]

Senator STENNIS. When we get around to that game, I am not warning you to get on our schedule the way you treat us.

Well, we thank you gentlemen very much. You always have very good testimony. We want you to come back.

I will transmit these supplements of what you said at the proper time to the other members of our subcommittee.

We will take the Nebraska witnesses next. Let's see if we can ask you to come around to the table and I will ask Senator Exon to introduce you.

INTRODUCTION OF NEBRASKA WITNESSES

Senator EXON. Let's start out if we might with the O'Neill unit witnesses and they are three fine Nebraskans—Mr. Mike Jess, the director of water resources; his assistant, Mr. Lee Becker from Lincoln, Nebr.; and a very dedicated Nebraskan who has long experience in water matters, Mr. Alfred Drayton of O'Neill, Nebr.

Would the three of you come forward at this time and take the seats here at the witness table.

Mr. Chairman, we have appreciated the help and support of the Appropriations Committee over the years in water matters and we have some other important water matters here today and Nebraskans here to give us advice and help. I don't believe he will be testifying but Mr. Clare Evans—will you stand up, Clare—is here and his primary concern is the Norden Dam proposition. Then we shift to another important project, two rivers that make up that drainage into the Mississippi, the Platte River and the Missouri River.

Mr. Earl Rowland will testify later along with Mr. Darrel Curry of Newcastle, Nebr.

Would you please stand, gentlemen, so the chairman will know who you are.

They are here on bank stabilization difficulties we have on the Missouri River since we tamed that grand old river. When you tame something that wild you cause other problems that have been very paramount in the northeast part of our State.

Then other witnesses that are here to discuss requests with regard to the North Platte River are Mr. Kent Miller from North Platte, Nebr., and Mr. and Mrs. Dale Wahlgren from North Platte.

Would you stand, please. They are all here. Thank you very much.

O'NEILL UNIT, NEBRASKA

Mr. Chairman, let me start out first by making a few comments on this important matter that is before us right now. Mr. Mike Jess, as I said, is the water resources director of Nebraska, he was water resources director in that department while I was Governor, he is a very talented man. And Lee Becker has been doing the lead on a revolutionary new study with regard to how we can better make use of water for irrigation purposes and the main testimony that they have this morning, Mr. Chairman, is to show you how that project is going, how their study is coming.

This project was authorized last year jointly by the Senate and the House with regard to studying less expensive alternatives to the construction of the Norden Dam and still provide the needed water. I am pleased to state that Nebraska's Department of Water Resources is presenting this committee today with a very interesting interim report on the study of workable, less costly alternatives to the dam.

The committee is well aware that this project has been stalled in litigation since 1976. By over a 100-vote margin in 1982 the project was deauthorized, Mr. Chairman, in the House of Representatives. Only the

Senate action salvaged the authorization. Last year the Congress approved the study of the alternatives and left the decision to Nebraska. I again express my appreciation to the committee for the assistance on this study. The State's efforts in examining alternatives have been very encouraging to date, and you will hear more about that now.

One last comment, Mr. Chairman. While the overwhelming majority of the people of Nebraska appreciate and applaud the efforts to find alternatives for agriculture at hopefully a less costly situation in this particular area, we continue to have a great deal of difficulty with the bureaucracy in the Bureau of Reclamation. I have taken them on in the past; I intend to take them on again.

I say to you, Mr. Chairman, that the Bureau of Reclamation sometime had better come before this committee and defend, if they will, the road blocks that they have been attempting to throw in the way of this study. For the record, and on the record, they have cooperated and I thank the bureaucracy for that. Off the record they have been less than forthcoming. The Bureau of Reclamation, unfortunately, has not come up with a new idea on irrigation matters for half a century and the testimony that you are about to receive from these two informed individuals from Nebraska highlight what we have been trying to come up with.

PROJECT DISCOUNT RATE

Our goal, Mr. Chairman, is to provide irrigation water for agriculture at the least cost and the least disruption and damage to the environment. We come back to the key matter in the Norden Dam proposition and that has been authorized, as the chairman knows, many years ago. If we lose the 3¼ percent favorable discount rate, the project could not go forward under any basis. There have been statements in Nebraska that are not accurate.

I would like to introduce for the record at this time, Mr. Chairman, the Congressional Research Service report to this Senator with regard to whether or not Congress could change the discount rate and keep it as part of the authorization. False, misleading claims are being made about this in Nebraska today. This report says, among other things, Mr. Chairman:

> All of these changes are clearly within Congress authority and Congress may either simply modify or reauthorize any authorized project.

Further the report says:

> Congress can specify what funding procedures it deems necessary with respect to any particular project and also can specify that a certain plan is to apply, in this case incorporating a non-Bureau of Reclamation plan.

I would interrupt with a little comment here. The Bureau of Reclamation does not tell the Congress what to do, the Congress tells the Bureau of Reclamation what to do. Just because the Bureau of Reclamation wants to throw up a roadblock from time to time, there are those of us here with enough strength and enough influence to see that they are knocked down.

PREPARED STATEMENT

Now back to this program. At this point I would like to introduce as part of the record, Mr. Chairman, a full statement on this matter that I have prepared for the record.

Senator STENNIS. Without objection, the statement will be put in the record.

[The statement follows:]

STATEMENT OF SENATOR J. JAMES EXON

Mr. Chairman, as you know, water is the lifeblood of agriculture. Your committee is considering several requests of special importance to Nebraska, not only in developing our State's water resources, but also controlling those resources.

The committee's support of the $350,000 request for the Prairie Bend study will be appreciated. This study, authorized last year by legislation which I introduced, will offer possible plans for addressing significant groundwater declines in the Prairie Bend area. This feasibility study is examining possible solutions which address the needs of both irrigators and the need to enhance the critical habitat needs along the Platte River.

The Bureau has also requested $30.5 million for continued work on the North Loup project. This fiscal year 1985 funding will bring this project nearly to the halfway point. In fiscal year 1985, the Bureau expects to complete the Calamus Dam and begin filling the reservoir. In addition, construction will be completed on the Mirdan Canal and work will begin on other important components of the project. Significant strides toward completion of the North Loup will be made possible with the fiscal year 1985 funding request.

Also, I am pleased that the State of Nebraska's department of water resources is presenting the committee with an interim report on the study of workable, less costly alternatives to the Norden Dam. As the committee is well aware, this project has been stalled in litigation since 1976. By over a 100-vote margin in 1982, the project was deauthorized in the House of Representatives. Only the Senate salvaged the authorization. Last year, the Congress approved a study of alternatives to be led by the State of Nebraska, and I again express my appreciation to the committee for the assistance on this study.

The State's efforts in examining alternatives have been very encouraging to date. State water experts appear to be on the verge of making history in finding a plan to develop water without the use of a dam, and, most importantly, without sacrificing the important water needs of agriculture in north-central Nebraska. The State is looking to known technology utilized for years by municipalities, and adopting this known technology to agricultural needs.

Mr. Chairman, I am committed to efforts at finding a workable water project for north-central Nebraska. I am encouraged and hopeful that the State's study, free from bureaucratic self-interest, will bring us across the threshold into a new era for agricultural water development and demonstrate the usefulness of ground water recharge technology as a workable, less costly way to meet the crucial needs of our State in particular, and agriculture in general.

The Corps of Engineers has also requested funding for several important flood control measures in our State. As the committee is aware, the North Platte area of my State has experienced severe flooding problems. We are hopeful that, with closer cooperation and coordination among the Bureau, the corps, and local water officials, this year's spring runoff will pass through the State with little damage.

Efforts to mitigate future flood problems are needed. I strongly support the request of the local natural resource district and the Platte Valley Flood Control Association for $500,000 in technical assistance funds to develop flood control demonstration facilities at specific areas along the Platte River near the city of North Platte. These demonstration sites would have basinwide applicability and benefits. The local corps officials have expressed their support for such efforts as well.

Flooding problems this year can be averted with a greater appreciation for the need to resolve the age-old conflict between the goals of the Bureau and those of the Corps. One seeks to hold as much water as possible for important irrigation needs, and the other seeks some storage reserved in these reservoirs for flood control.

Finally, Mr. Chairman, I would again request your assistance in funding operation and maintenance needs of the Missouri National Recreation River. Nearly $6 million in Federal dollars has already been invested in this project. Without operation and maintenance funds this investment stands imperiled. This is primarily a bank stabilization program.

Senator Abdnor and I have pleaded with the Corps of Engineers for minimal funding to protect the existing Federal investment. Although local corps officials are sympathetic, Washington continues to turn a deaf ear. It is fiscally irresponsible to invest $6 million in Federal funds to a project only to neglect it's upkeep. Long-term costs will surely be greater if the project is further neglected by the corps.

Mr. Chairman, other important projects such as the Papillion Creek flood control plan, are also pending your consideration in the fiscal year 1985 funding request. This Senator urges your support and I commit my efforts to working with you on the energy and water appropriations bill. Your cooperation and assistance in the past has been tremendously appreciated by the citizens of Nebraska. I look forward to continuing this effort with you.

Thank you for your consideration.

LETTER FROM PAMELA BALDWIN, LEGISLATIVE ATTORNEY, AMERICAN LAW DIVISION, CONGRESSIONAL RESEARCH SERVICE, LIBRARY OF CONGRESS

June 1, 1983

TO : Honorable J. James Exon
Attention: Bill Schiffbauer

FROM : American Law Division

SUBJECT : Modification of the O'Neill Unit

We have spoken with Mr. Bill Schiffbauer of your staff on issues related to the legislation you are considering introducing on the above subject and you have asked for a memorandum of the points covered in that conversation.

As you know, the O'Neill Unit was initially authorized by the Act of August 21, 1954, Pub. L. 83-612, 68 Stat. 757, as a part of the Missouri River Basin project. The Secretary of the Interior was authorized to conduct feasibility investigations with respect to the Missouri River Basin program by the Act of September 7, 1966, Pub. L. 89-561, 80 Stat. 707. A feasibility report was submitted to Congress in 1968, as H. Doc. No. 378, 90th Cong., 2d Sess. Section 401 of Title VI of the Reclamation Project Authorization Act of 1972, Pub. L. 92-514, 86 Stat. 964, reauthorized the O'Neill unit and set out the principal features of the unit as including "Norden Dam and Reservoir, related canals, a pumping plant, distribution systems, and other necessary works needed to effect the aforesaid purposes." The purposes of the unit were stated to be for "providing irrigation water for seventy-seven thousand acres of land, flood control, fish and wildlife conservation and development, public outdoor recreation, and for other purposes."

Your bill amends this section primarily to eliminate the Norden Dam and Reservoir, to eliminate flood control as a purpose, and to reduce the projected number of irrigated acres to sixty-seven thousand acres. All of these changes are clearly within Congress' authority and Congress may either simply modify or reauthorize an already authorized project. Reauthorization may entail full feasibility studies or other justification processes that you have indicated you wish to minimize or avoid. With that goal in mind, we suggested to your staffer that the bill might be changed to eliminate all language that made it seem as though the project was intended to be restudied under full reauthorization procedures: for example, by eliminating calling the bill, "The . . . . Act of 1983", and by changing " the purpose of this Act is to direct the Secretary of the Interior to reprogram funding and procedures" in section 2(b) of the bill, to simply state that the purpose of the Act is to modify the O'Neill Unit.

Furthermore, to clarify the planning process for the modified version of the project, you may wish to add after "purposes" in line five of page 2 of the bill "in accordance with the plan dated _____________, devised by _____________" (It is our understanding that a coordinating entity will be devising a plan for the modified project. If it is available you may wish to append this plan to the Committee report.)

To incorporate by reference whatever plan you wish to have guide the modification of the project also relates to the question you asked about "maintaining the current 3 1/2% interest rate." A check with the Bureau of Reclamation as to what rates apply to the O'Neill project reveals that a 3 1/4% discount rate applied to the project when it was being studied and planned for purposes of the 1972 reauthorization. However, this particular rate was used only during the planning and justification process and is separate from the "payback" rate of interest that applies to the reimbursement of the federal government for various parts of the project. This latter rate is higher than 3 1/4%, even as to the O'Neill Unit. Therefore, the only way you would "lose" the 3 1/4% rate by legislation now is if that legislation necessitates new planning and costs justifications by the Bureau, which new plans would be based on a higher current discount rate for purposes of performing the usual cost/benefit analysis. It is not clear whether the project has been so changed as to necessitate these processes. However, Congress can specify what planning procedures it deems necessary with respect to any particular project and also can specify that a certain plan is to apply. In this case, incorporating a non-Bureau plan with respect to a modification of an already authorized project arguably could be interpreted as obviating the need for the usual Bureau procedures in that regard, thereby making the planning discount rate irrelevant.

As we noted to your staffer, there are various factors to weigh in deciding how much to specify in the bill. Stating clearly that the cost/benefit justification process is not to apply to this modification may create opposition. Describing the project only as a modification and incorporating by reference an outside planning document may result in ambiguity on the issue of justification procedure. Your staffer indicated that support for the compromise, modified project appears to be growing and these extraneous factors may ultimately determine how you wish to phrase the bill on this issue.

Lastly, section 4 of your bill amends section 406 of the 1972 reauthorization to correct an error (an omitted line), but leaves the amount of funds authorized unchanged. In view of the significant changes in the projects' features, you may wish to update this amount.

We hope this information is helpful to you.

PREPARED STATEMENT OF EDWARD ZORINSKY OF NEBRASKA

Senator STENNIS. Senator Zorinsky notified me that he will submit a statement for the record. Without objection the statement of the Senator will be made a part of the record.

[The statement follows:]

Statement of Senator Edward Zorinsky

Mr. Chairman, I would like to address a flooding problem in west-central Nebraska on and around the confluence of the North and South Platte Rivers.

You have received testimony from two gentlemen, Mr. Kent O. Miller, General Manager of the Twin Platte Natural Resources District, and Dale Wahlgren, president of the Platte River Flood Control Association, both of whom are from the problem area and are acutely aware of the local problem. I will not try to improve on their explanation of the situation. It is quite clear that the past flooding and the threat of future flooding are problems that deserve immediate congressional attention. The assistance that Mr. Miller and Mr. Wahlgren are requesting will form the basis for a proper solution, and consists of two parts.

First, $500,000 would be appropriated under Section 55, P.L. 93-251 authority to provide technical and engineering assistance to develop bank stabilization measures for the sites along the Platte identified in Mr. Miller's testimony. Such assistance would be instrumental in helping local interests develop methods for controlling excessive flows and maintaining the integrity of the riverbanks. Second, authority under Section 32 of the Water Resources Development Act of 1974 would be revived so as to allow demonstration flood control and bank stabilization projects along the Platte River, including the region near the North Platte/South Platte confluence. Taken together, these two proposals would lead to effective and innovative remedies to the severe flooding problems along the Platte River.

A major consideration in taking this two-tiered approach is that some meaningful bank stabilization work could be performed relatively quickly. My understanding is that the Corps of Engineers could have one or two projects in place this year wih more to follow in 1985. Although these measures realistically would provide minimal benefit during this flood

SEASON, FLOOD MITIGATION ALONG THE PLATTE COULD BE VERY SUBSTANTIAL BY NEXT SPRING. THIS IS IMPORTANT BECAUSE THE GEOLOGICAL, GEOGRAPHICAL, AND METEOROLOGICAL CHARACTERISTICS OF THE AREA INDICATE THAT THESE FLOODING PROBLEMS WILL BE RECURRING ONES. THE PLATTE DRAINS THE EASTERN SLOPE OF THE ROCKIES AND IS SUBJECT TO THE MOUNTAIN WEATHER CONDITIONS. AGAIN THIS YEAR AS IN 1983, ABOVE-AVERAGE SNOWFALLS AND A LATE SPRING THAW COULD SEND ANOTHER FLOODING TORRENT DOWN THE PLATTE. THE SAME CIRCUMSTANCES, OR WORSE, COULD AND PROBABLY WILL DEVELOP IN SUBSEQUENT YEARS. I URGE THAT WE ACT QUICKLY AND EFFECTIVELY SO THAT RESIDENTS ALONG THE PLATTE ARE NOT HELD HOSTAGE EVERY SPRING BY THE FORCES OF NATURE.

AT THE VERY LEAST, THESE IDEAS PROVIDE A GOOD BEGINNING, THE BASIS FOR A SOLUTION WHICH MAY BE FURTHER SHAPED AND REFINED AS WE BELIEVE NECESSARY. I WILL BE PLEASED TO WORK WITH YOU AND THE DISTINGUISHED MEMBERS OF THE COMMITTEE SO THAT WE MAY ARRIVE AT AN APPROPRIATE LEGISLATIVE STRATEGY FOR MITIGATING THE EFFECTS OF ANNUAL DAMAGING FLOODS ALONG THE PLATTE RIVER. I WILL APPRECIATE YOUR KIND ATTENTION TO THIS MATTER.

MR. CHAIRMAN, I WOULD LIKE TO ADDRESS THE NEED FOR FUNDING OF A WATER PROJECT IN COLORADO, THE NARROWS UNIT.

THE NARROWS UNIT HAS BEEN AUTHORIZED FOR MANY YEARS AS PART OF THE PICK-SLOAN MISSOURI BASIN PROGRAM BUT HAS FAILED TO RECEIVE AN APPROPRIATION TO BEGIN CONSTRUCTION. THE PROJECT IS DESIGNED PRIMARILY TO PROVIDE WATER SUPPLY BENEFITS FOR IRRIGATION AND MUNICIPAL/INDUSTRIAL USES, BUT I AM PARTICULARLY INTERESTED IN ANOTHER BENEFIT FOR DOWNSTREAM RESIDENTS OF BOTH COLORADO AND NEBRASKA--FLOOD CONTROL.

THE REGION OF THE SOUTH PLATTE RIVER FLOWING THROUGH THE DENVER AREA IS CURRENTLY WELL MANAGED BY A SERIES OF ARMY CORPS OF ENGINEERS DAMS. THESE DAMS HAVE PROVIDED EXCELLENT CONTROL OF THE CHARACTERISTICALLY HIGH SNOW MELT RUN-OFFS FROM THE MOUNTAINS UPSTREAM AND SOUTHWEST OF DENVER. THE FLOOD PROTECTION PROVIDED BY THESE CORPS OF ENGINEERS PROJECTS HAS BEEN INVALUABLE TO THE PEOPLE LIVING IN AND IMMEDIATELY DOWNSTREAM OF DENVER.

However, three rivers feed mountain snow melt run-off into the South Platte further downstream with no substantial control. The St. Vrain, Big Thompson, and Cache La Poudre rivers flow directly into the South Platte, and in years of average snow fall and temperature conditions they can send much of the South Platte swelling beyond its banks. If excessive weather conditions prevail, as they have the past two years, the downstream flooding can take on monumental proportions. Flooding in recent years has been particularly bad in Nebraska past the confluence of the North and South Platte rivers, and the lack of adequate flood control on the Colorado neck of the South Platte has been a major factor contributing to the problem.

It is especially disturbing that the same water that gushes destructively down the river during the spring melt could be used for constructive purposes--if a storage facility were in place to contain the run-off and distribute the flows more evenly throughout the course of the year. This is not to say that the Narrows would completely control or eliminate the flooding problems on the Platte, but it would play an important role in reducing the severity of the problem while enhancing the water supply in the project area and making the downstream flow more reliable.

The Narrows Unit has met with favor in Nebraska as well as Colorado. The Legislature of Nebraska has passed resolutions of support for the Project, and representatives of the Twin Platte Natural Resources District have informed me of their support as well. It is my pleasure to inform you that I, too, support funding to begin work on the Narrows Unit, and I would ask you to appropriate funds for this purpose.

O'NEILL UNIT, NEBRASKA

STATEMENT OF MICHAEL JESS, DIRECTOR OF WATER RESOURCES, STATE OF NEBRASKA

ACCOMPANIED BY H. LEE BECKER, STATE HYDROLOGIST

Senator EXON. At this time if the Chair is willing, I would like to introduce Mr. Mike Jess who will be followed by Mr. Lee Becker.

Senator STENNIS. All right. We are glad to have you here, Mr. Jess. You may proceed now.

Mr. JESS. Thank you, Mr. Chairman.

I want this morning to report to you the progress we have made thus far with the State lead alternative study that is jointly funded first by the Congress and by the State of Nebraska and the various State agencies that have been involved as well as the private sector and the North Central Irrigation District, Alfred Drayton being the chairman.

STUDY OF ALTERNATIVES

We embarked on this study last summer with the idea of striving to find an alternative for a water supply that would not involve construction of a major dam and reservoir. Earlier it was suggested that a large-scale well field could be constructed in the Niobrara River Valley. Our reaction to that was that there are a good deal of mechanical problems with such a large-scale well field operation that there certainly would be the likelihood of an alternative to that.

We began looking at facilities in other parts of the United States and other parts of the world as an example of an engineering facility to supply these large quantities of water and our first reaction was the infiltration gallery which is essentially a buried perforated pipe network constructed in such a way as to be parallel to a riverbed, excavated in a trench below the elevation of the riverbed which, when it operates, in effect induces into an infiltration from the flow of the river into the gallery system and then it is led away then to a pumping plant and supplies water for project needs.

We have actually toured the facilities at Des Moines, Iowa, which is an infiltration gallery that has been in place and in operation since the turn of the century with essentially very little operation and maintenance difficulties; in fact, as I understand, there have been none since at least World War I. This being one alternative, we have also looked at the possibility of another innovation from our friends in the municipal water treatment industry, the rapid sand filter used by many cities, including Washington, DC, for treatment of water for municipal purposes.

The point with all of these facilities has been to obtain a large supply of water free of sediment. If you look on the handout that I have provided, there are some artist's sketches of first the typical infiltration gallery and then the rapid sand filter. Going on, the purpose of these facilities, as I indicated, is to provide sediment-free water because we envision a project that would be somewhat nontypical to what you may consider as conventional irrigation projects. We would instead look at the recharge of our underground reservoirs, our aquifer system. Sediment-free water, of course, is essential to prevent a plugging up of the facilities.

Some have tried construction of pits on the surface and, of course, the sediment in the water will soon become plugged up. Also with the growth of algae and other materials in those shallow pits they tend to contribute to the plugging of the recharge facility. Instead, if I could have that sample passed around for the chairman, we have the widespread installation for what you might consider to be a leaky pipe network.

What is being distributed here is a plastic perforated pipe and has what is called a sock around the outside. We envision in the project area—that is to say, in the area where the irrigated lands are and where there is an aquifer underlying those lands—that this material be placed below the frost line and that the supply water be allowed to pass through it, it would go out the small perforation inside and, in effect, provide the quantities of water for recharge purposes of the underlying aquifer system.

Of course it is that system that the irrigators in the O'Neill project are currently mining, drawing more water from the aquifer than nature returns by the natural means. So, we are, in effect, trying to devise a system to assure a sustained yield from that aquifer system.

There are portions of the O'Neill project lands that are not underlined by an aquifer system or an aquifer system that could be readily recharged and those locations we have felt that in order to fulfill the authorization of Congress in supplying water to those lands, that water would be supplied directly on demand during the growing season. Those lands compromise a small portion of the total, however, than those lands underlain by an aquifer.

We are trying to, at this point, accomplish testing in the field, testing of the water supply capability in the Nibrara Valley as well as testing the possibilities for use of the perforated pipe for sustained and widespread recharge purposes. I am sure if we come back again a year from now we will be able to report to you the results of those tests.

PRELIMINARY COST OF ALTERNATIVE

We are also as a part of our study intending to examine into the cost of the alternatives that we will investigate. I don't have at this point the precise cost estimate because our study is really less than half complete, an 18-month study, and we are not quite half through it yet. However, preliminary costs would suggest that the total project costs would be much the same as the Bureau of Reclamation predicted in its alternative study completed in 1981. As an indication we would feel that the total project cost perhaps on the order of $200 million would be at least a ballpark figure to think in terms of total cost.

The study goes on. We will also be doing a legal, institutional, and environmental review. Last year the Nebraska Legislature passed the pretty far-reaching bill—L.B. 198—which authorizes water rights to be granted for such a project. The State law in Nebraska prior to that was not clear on the appropriateness of a water right for this sort of project and we feel that the law also authorizes irrigation districts to collect assessments to accomplish this purpose as we have discussed before.

We have initiated discussions with our State Game and Parks Commission which are simply preliminary at this point with the initial reaction. We believe it has been favorable and I suspect that stems from the——

Senator STENNIS. Mr. Jess, I am sorry. You have used up your time. We are going to ask that your written statement be placed in the record, and if you have some additional points you want to make in writing or include in the record, we will be glad to have you do that.

Your testimony has been very helpful. Thank you very much.

[The statement follows:]

STATEMENT OF MICHAEL JESS, DIRECTOR OF WATER RESOURCES, NEBRASKA

STUDY DESCRIPTION: An alternative proposal advanced by the Nature Conservancy was the impetus for the state-led study. Briefly, that proposal called for 196 wells to provide the water supply for transportation to and recharge of water bearing formations underlying many project lands. The Nature Conservancy claims its proposal is less costly. If true, the benefit-cost ratio would be more favorable than that projected by the Bureau of Reclamation for the authorized O'Neill Unit.

Intended to "pass through" the Bureau of Reclamation to the State, Congress in August 1983 authorized $100,000 for the review. State matching efforts will equal that commitment. Local officials, state and university agencies, the Bureau of Reclamation, and the private sector are participating in the endeavor.

By substituting several more innovative elements within the proposal, the state-led study has focused upon service to the same 77,000 acres authorized for service by the Congress. Five key questions will be addressed.

(1) In the absence of a major reservoir (Norden), can an alternative means be devised for supplying project demands?

(2) Where recharge is impossible or impractical, can direct, conventional service be provided?

(3) Can recharge be sustained on a large-scale basis?

(4) In terms of out-of-pocket costs to irrigators as well as federal, state and local outlays, what are estimated costs for the alternatives investigated?

(5) What legal, institutional and environmental considerations does the alternative proposal raise?

Water Supply

For the larger, approximately 69,000-acre block lying north of Atkinson and O'Neill, several water supply alternatives are being examined. Each would withdraw ground water from alluvial deposits in the Niobrara River valley. Despite being labeled "untried and unproven" by some, each alternative technique has in fact been utilized for generations in many parts of the world.

A horizontal collector system is noted in biblical passages. The first contemporary design and installation in the United States was prior to the Civil War. The horizontal collector consists of buried perforated pipe installed away from, but roughly parallel to, the river's bank. Alternatively, the pipe can be installed beneath and perpendicular to the stream bed. In either case the perforated pipe would terminate at a central location where a large diameter caisson or pit would be excavated. From there water would be removed for conveyance to project lands by pumping.

When operating, water from the river would pass through the bed and to the buried system. It would enter the collector through the pipe perforations. If properly designed, the system would perform much the same as a conventional water well. Sediment-free water (essential for intentional ground water recharge) would result from filtration through subsurface earth materials.

A second water supply alternative consists of an adaptation to the commonly used rapid sand filter which was developed during the period 1900-1910. In practice we envision a concrete structure located within a channel of the Niobrara River. Resting on the base in each of ten cells aligned parallel to the river, a perforated intake pipe would be covered with specially-sized and graded sand and gravel. In much the same manner as the buried collector, river water would be filtered as it passed downward through the sand and gravel to the perforated intake pipes. As before, the water would be piped to a central caisson for conveyance to the project lands. Periodic backflushing of each cell would remove trapped sediment, thus improving the intake rate.

Other alternatives such as a Ranney collector or a series of small vertical wells connected to a central caisson by means of syphon tubes are also under review. Beyond supplying sediment-free water, we believe several important advantages exist for these types of systems over the 196-well proposal of the Nature Conservancy. When properly designed, any one of these systems is capable of extracting large quantities from shallow, thin and fine-grained aquifers. A centralized pumping facility would be more cost effective, and it would allow for easier access and reduced maintenance responsibilities.

For the smaller 8,000-acre tract near Springview, we have concluded that a traditional river intake and pumping facility is most feasible.

Service to Project Lands

Our preliminary conclusions suggest that without extensive operation and maintenance responsibilities, sustained, wide-spread recharge by means of surface pits or through existing irrigation wells is improbable. An alternative means, however, appears superior.

We plan to evaluate a subsurface recharge network fundamentally amounting to a conventional agricultural drainage system (a tile-drain system referred to by some) operated in reverse. Instead of draining water from the soil profile, the subsurface network would be utilized in recharging the underlying aquifer(s). By way of design and intentional control, water would slowly seep from a "leaky" buried pipe network. Low-cost, perforated plastic materials will be evaluated in the field.

Intentional raising, lowering or stabilizing of ground water levels could be achieved through management and supervision of leakage from the recharge network. Migration of recharge water beyond project boundaries could be minimized. Weather conditions adverse to land surface basin or pit recharge operations would not be a hindrance to successful recharge performance. Encrustation and plugging, problems frequently reported by those recharging through conventional wells, would be eliminated. Government acquisition of land for basins or pits, as well as health and safety problems inherent with their presence, would also be eliminated.

For those lands not overlying an aquifer system or because of greater depth and the presence of intervening impermeable strata, recharge is deemed impossible or impractical. Irrigation service to these lands must be by conventional means.

Water demand estimates have been made for each segment of the project. "Sizing" of project components is underway. An estimated 130 cubic feet per second (cfs) pipeline is envisioned as necessary for direct service to project lands near Springview.

A second pipeline of approximately the same capacity would serve the larger block of land north of Atkinson and O'Neill. This pipeline would operate year round, in contrast to the pipeline serving the Springview lands which would operate only during the summer months. The second pipeline would serve the lands not susceptible to recharge during the summer. During the remaining months it would provide supplies to the recharge network. Year round operation permits pumps, pipelines and other features to be of more moderate size than could otherwise be specified.

Project Costs

While only rough, preliminary cost estimates have been made, it appears that each alternative under review would be less costly than the authorized project. The primary savings is achieved by eliminating construction and land acquisition for the Norden dam and reservoir. Other cost savings would result from construction of a pipeline rather than a canal. In addition to its shorter length, the pipeline would be smaller in conveyance capacity. Land right easements as opposed to purchases are envisioned.

Contrasted to the authorized project, the alternatives we are reviewing are more energy intensive. To illustrate, total lift in pumping from the Niobrara valley and conveyance of water to the project lands amounts to 400 to 450 feet.

Offsetting conditions are likely, however. Private irrigation wells north of Atkinson and O'Neill currently lift ground water some 100 feet. Along with significant loss in total irrigated acres, the Bureau's future projections suggest that lift could double. Intentional recharge through a subsurface recharge network could offset expected declines and even reduce them. Ground water levels could be raised above current or even pristine elevations. Despite high energy costs, it is expected that the state-led study will show that operator's out-of-pocket costs will be substantially less than many fear. Under some assumptions, those costs may even be less than current outlays.

Without doubt, the state-led alternative study includes components not commonly incorporated in federal water projects. Present federal cost-sharing criteria under the provisions of the Pick-Sloan program amounts to a project financing mechanism. Most of those provisions apply directly to traditional projects. For the alternatives we are examining, subsidies in the form of incidental flood control and recreation benefits would not apply. We, therefore, expect that construction of an alternative would cause project farm operators to pay a proportionately higher share of the total cost.

Legal, Institutional and Environmental Considerations

A legal review has recently been started. With last year's passage of LB 198 by the Nebraska Legislature, we anticipate that review will reveal the state has authority to issue and administer water rights for a project with the components we have described. The bill also established clear authority for the irrigation district to levee assessments to those receiving the benefits of intentional recharge.

Discussions have also been initiated with State Game and Parks Commission biologists. Because most project facilities would be buried, we believe disruptive environmental consequences will be minimal. In fact, preliminary reaction to alternative project concepts has been favorable. As more precise estimates become available, those discussions will continue. It is our intention to "factor" environmental considerations into the alternative proposals as the planning process moves forward. In addition to native flora and fauna, two rare and endangered species are known to migrate through the area. Habitat needs for bald eagles and whooping cranes will be incorporated in the proposed plan.

Approximate Expenditures to Date

Federal $30,000

State $35,000

Conclusion

At this juncture, we believe several viable alternatives exist. Each has the potential of being less costly than the authorized project. They all rely upon fundamental engineering principles which experience shows are sound.

Local acceptance of our alternatives has been mixed. We have noted a greater degree of acceptance by those living more closely to the project lands near Atkinson and O'Neill. To them it seems a desire for construction of the Norden Dam is secondary to a desire for importation of supplemental water supplies to offset expected ground water depletions.

Practically everyone affiliated with the project has expressed a desire to maintain its present Congressional authorization. Availability of Pick-Sloan power and a favorable discount rate are considered key factors. A lengthy planning period, commonly experienced in seeking authorization, is of wide spread concern to potential project beneficiaries.

RAPID SAND FILTER AND INFILTRATION TECHNOLOGY

Senator STENNIS. As I understand, you have a department of water resources in the State of Nebraska, is that right?

Mr. JESS. Yes.

Senator STENNIS. I commend you highly for that.

Senator Exon, you had charge of that in a large way as Governor, I understand.

Senator EXON. I sure did, Mr. Chairman. They do an excellent job.

Senator STENNIS. I am sure they do a good job. I wish all States that needed it had this department.

All right. Now which one of you gentlemen will go next?

Mr. BECKER. All right.

Senator STENNIS. All right. You proceed, Mr. Becker.

You have a written statement, too?

Mr. BECKER. My statement was included with Mr. Jess' as far as the written testimony is concerned, but, I have very brief statements that I would like to make.

Senator STENNIS. All right.

Mr. BECKER. First off I would like to reemphasize the fact that the components, as far as the water supply and the means for recharging, are nothing new as far as in their application; they are being redirected for a major agricultural project. But as far as the rapid sand filter and infiltration gallery, they have been used for decades in fact. The recharging is using the same material that is used to drain agricultural lands, to feed water to the land and to drain it away.

Finally, I would like to thank Mr. Drayton for the assistance of himself and the other members of the irrigation district in study activities that were taken part of in the area.

That is the conclusion of my statement.

Senator EXON. If I could ask one question.

Senator STENNIS. Certainly.

Senator EXON. As a professional dealing in this area, can you summarize what you can tell us thus far on this project? Have you thus far run into any surprises that would be of a negative nature and have the findings thus far—and I keep emphasizing that—been basically what you had hoped for?

Mr. BECKER. No; we have not really found any surprises. In fact, one portion of it, the test drilling that was reported in the Niobrara Valley, indicated the conditions there were much better for a water supply than what we had earlier felt was possible. As far as the recharge part, there are some areas that may be a problem as far as accomplishing recharge, but it appears that they might be small in area and something that could, from a technical standpoint, be dealt with. Technically, I don't think there are any serious problems.

Senator EXON. Thank you.

I think we can proceed with Alfred Drayton. Mr. Chairman, Alfred Drayton is probably one of the most veteran people that I know of and his advice and counsel is sought statewide.

Alfred, would you please proceed.

Senator STENNIS. You have testified here before. Glad to have you back, sir.

O'NEILL UNIT, NEBRASKA

STATEMENT OF ALFRED T. DRAYTON, PRESIDENT, NORTH CENTRAL NEBRASKA RECLAMATION DISTRICT

Mr. DRAYTON. Thank you, Senator Stennis, and Senator Exon, also, for listening to us again.

We don't have much to say, because I think Senator Exon pretty well covered the position we are in. We are still in court and the water department in Nebraska is studying these alternatives. The only other thing would be that the Bureau of Reclamation is also studying their lands to see if it can be cut down in any way to make it more acceptable. As far as the district and I am concerned, we are awaiting answers and we are not taking one against another. We are trying to cooperate with everybody. We want the water, that is what we came after. I think Senator Stennis knows that we have been here many times and still come back every year. We want the water.

Senator EXON. What you are saying, Alfred, you have been here almost as long as Senator Stennis has working for the good of your State.

Mr. Drayton. Almost.

PREPARED STATEMENT

Senator EXON. You do want to submit your full statement for the record, I presume.

Mr. DRAYTON. Yes; I have a statement and other supporting information which have been submitted.

Senator STENNIS. They will be placed in the record.

We also have statements from the Nebraska Water Resources Association and the Natural Resources Commission of Nebraska.

If there is no objection, those statements will also be made part of the record at this point.

[The information follows:]

STATEMENT OF ALFRED T. DRAYTON, PRESIDENT, NORTH CENTRAL NEBRASKA RECLAMATION DISTRICT

The Board of Directors of the North Central Nebraska Reclamation District respectfully request your support for construction funds in FY 1985 in the amount of $600,000.00 as outlined in President Reagan's 1985 budget. The need for water is fully known and we continue to have strong support for a water project. In the summer and fall of 1979 we held three elections and the voters supported construction of the project by 79%. Again at the 1982 general election the voters of Nebraska, voiced their support of water projects by authorizing bonding as means of paying for water projects.

In 1976 an environmentalist group filed a lawsuit against the O'Neill Unit's "Environmental Impact Statement". This lawsuit stopped the project from further construction. The Bureau of reclamation has been ready for a third and final trial for two years. The Court has finally set a trial date of December 3, 1984.

During these years eight or ten alternatives have been studied by the Bureau. None have proven to be comparable to the original O'Neill Unit Plan.

One more alternative known as the "O'Neill Alternative Sutdy" has been funded by Congress. This study is to be completed by January 30, 1985. We understand that the Nebraska Water Resources Department will testify in regard to this alternative.

When United States Congress voted $100,000.00 to study the alternative Congresswoman Virginia Smith asked the Bureau of Reclamation to restudy the original O'Neill Unit to modernize the plans and reduce costs where possible. The Bureau is working on this and will have their answers by January 30, 1985.

The Directors of the North Central Nebraska Reclamation District can not make any comparisons of the two plans until both studies are completed.

In March 1981, knowing that construction costs had advanced due to the environmental lawsuit the Directors of the Niobrara Basin Irrigation District voted to offer to increase their annual repayment of $5.65 to $11.30 per acre. This will increase the repayment by $21,752,500. This offer still stands.

On January 15, 1979, the Directors of the North Central Nebraska Reclamation District signed an agreement with the Bureau of Reclamation known as "Memorandum of Understanding". This agreement guarantees that the future farmers in the district will use all good practices to insure proper use of water and fertilizer, thus protecting the land and preventing waste and the polution of the ground water.

A third attachment to our statement deals with an article, showing techniques of opponents, published in the Lincoln Star, a newspaper some 225 miles from any of the land to be irrigated and about 300 miles from the proposed Norden Dam. We feel that this article will show you that the number of people that spend any time or money with the opponents is very small. It will also give you an idea of the quality of their statements. Plese read it in full.

RESOLUTION AGREEING TO RENEGOTIATE CONTRACT NO. 14-06-700-8395 FOR REPAYMENT OF O'NEILL UNIT DISTRIBUTION WORKS

WHEREAS, the Niobrara Basin Irrigation District, herein called the Irrigation District, is organized and exists pursuant to the laws of the State of Nebraska; and

WHEREAS, the Irrigation District includes the irrigable lands of the O'Neill Unit, Nebraska, Pick-Sloan Missouri Basin Program; and

WHEREAS, the Irrigation District executed Contract No. 14-06-700-8395, the 18th day of May, 1976 with the United States of America to pay the construction costs of the distribution works of the O'Neill Unit based on January 1975 costs; and

WHEREAS, the cost of the O'Neill Unit has increased about fifty (50) percent since the Irrigation District executed that contract.

NOW, THEREFORE, we directors of the Niobrara Basin Irrigation District do respectfully request the United States of America that Article 4.a., page 6, Contract No. 14-06-700-8395 be amended to read "$34,804,000".

BE IT FURTHER RESOLVED that this Resolution is not intended nor shall any effort be made by any parties to amend other Articles or other parts of Article 4.a. of Contract No. 14-06-700-8395.

Moved to adopt by Howard Carr. Seconded by Alfred Drayton.

Voting "Yes": Carr and Drayton.

Voting "No": None.

Absent and not voting: Paul Zakrzewski.

Resolution adopted at the regular March 16, 1981 meeting of the Niobrara Basin Irrigation District.

ALFRED T. DRAYTON.
President.

MEMORANDUM OF UNDERSTANDING AMONG THE UNITED STATES, NORTH CENTRAL NEBRASKA RECLAMATION DISTRICT, AND NIOBRARA BASIN IRRIGATION DISTRICT CONCERNING COMPLIANCE WITH FEDERAL WATER POLLUTION CONTROL STANDARDS FOR GROUND WATER

This memorandum of understanding, made this 15th day of February, 1979, among the United States of America, hereinafter called the United States, acting through the Regional Director of the Lower Missouri Region, Bureau of Reclamation, and the North Central Nebraska Reclamation District, hereinafter called the Reclamation District, and the Niobrara Basin Irrigation District, hereinafter called the Irrigation District, both of which may be collectively referred to as the Districts.

The purpose of this memorandum of understanding is to recognize and implement more fully the provisions of the Federal Water Pollution Control Act, as amended, and Executive Order 12088, to ensure compliance with certain Federal pollution control standards, particularly related to the ground-water resources of the O'Neill Unit of the Pick-Sloan Missouri Basin Program, a Federal Reclamation project, and is entered into by the parties hereto pursuant to Federal Reclamation laws and the laws of the State of Nebraska.

The following preliminary recitals are made for the purpose of explanation:

(*a*) The United States, acting through the Secretary of the Interior, is constructing the O'Neill Unit of the Pick-Sloan Missouri Basin Program, pursuant to the Act of October 20, 1972 (86 Stat. 964) and other Reclamation laws.

(*b*) The United States has contracted with the Reclamation District (Contract No. 14-06-700-8394 dated May 18, 1976) for the furnishing of water through the water supply works of the O'Neill Unit for the delivery of said water to the irrigable lands of the Irrigation District.

(*c*) The United States has contracted with the Irrigation District (Contract No. 14-06-700-8394 dated May 18, 1976) for the construction and operation and maintenance of certain distribution and drainage works to serve the irrigable lands of the Irrigation District.

(*d*) The water supply to be provided to the Reclamation District pursuant to the provisions of Contract No. 14-06-700-8394 is to be delivered to the Irrigation District, pursuant to the provisions of a water service agreement to be executed between the two Districts.

(*e*) Studies for the area, including the O'Neill Unit, indicate that nitrate-nitrogen concentrations in the ground water may exceed the Environmental Protection Agency's standards for domestic water supplies and public health. A source of such nitrates could be from the application of nitrogen fertilizers on the irrigable lands in the area. The uncontrolled application of nitrogen fertilizers, along with the excessive application of irrigation water to such lands, could contribute to pollution of the ground-water resources. Such studies also demonstrate that without the dilution effect of the project surface supply imported from the Niobrara River, the concentration of nitrate-nitrogen in the ground water will be substantially greater without the development of the O'Neill Unit because of the progressive depletion of the ground-water supply by pumping.

(*f*) The Environmental Protection Agency has expressed concern about the high level of nitrates which could occur in the area's ground water as a direct result of irrigated agriculture, and has determined that reasonable best management practices should be implemented throughout the entire area. It is believed that by implementing best management practices on lands to receive irrigation water service from the O'Neill Unit, an example would be set for the entire area.

(*g*) Executive Order 12088, "Federal Compliance With Pollution Control Standards" dated October 13, 1978, requires that each executive agency shall cooperate with the Administrator of the Environmental Protection Agency and the State, interstate, and local agencies in the prevention, control, and abatement of environmental pollution.

(*h*) Among other things, the contracts between the United States and the Districts provide that the Districts shall, within their legal authority, comply fully with all applicable Federal laws, orders, and regulations, and the laws of the State of Nebraska, as administered by appropriate authorities, concerning the pollution of streams, reservoirs, ground water, or water courses. Said contracts further provide that the Districts and the United States acknowledge the desirability and the necessity of the adoption of proper soil and water conservation practices to protect the lands of the District against deterioration, to permit the economic use of water, and to sustain optimum crop yields, and that the parties thereto will cooperate to obtain these objectives.

THEREFORE, in furtherance of the provisions and objectives of the articles entitled "Water and Air Pollution Control" and "Soil and Water Conservation" of the aforementioned contracts between the United States and Districts and the provisions and objectives of Executive Order 12088, the parties hereto agree as follows:

1. The Districts, either jointly or separately, shall implement and operate or otherwise provide a program to advise the water users as to the proper timing and amounts of irrigation water application.

2. As a condition to receive water from the O'Neill Unit, the District shall require:

(*a*) That no water user may receive project water until he has satisfactorily attended a training course, not to exceed one week, on irrigation scheduling to be provided by the University of Nebraska or other entity in the towns of Springview, Atkinson, or O'Neill. Such a course shall include the reasonable best management practices for irrigation water and crop fertilization application practices and procedures.

(*b*) That each project water user will use soil moisture-measuring equipment.

(*c*) That each project water user will institute and maintain an irrigation scheduling program. Such a program will include the use of information from soil moisture-measuring equipment and other procedures through which the water user will, to the extent practicable, schedule the application of irrigation water in amounts which will not move below the root zone.

(*d*) That no water user receiving project water will apply nitrogen fertilizer to project lands during the fall and winter, except for minimum starter applications. The disposal of livestock manure is excluded from this limitation.

(*e*) Prior to the delivery of water for the O'Neill Unit, the Districts shall issue such rules and regulations as may be necessary to implement the provisions of this article.

3. The District shall provide each user of project water such copies of current and revised University of Nebraska fertilizer guide sheets as they become available.

4. The Bureau of Reclamation, in cooperation with the Districts, will monitor and evaluate ground-water quality and quality conditions related to the irrigable lands and facilities of the O'Neill Unit, but not for nondistrict lands in the area. Such monitoring

and evaluation may be carried out in conjunction with other similar objective programs for the area.

5. The Districts shall be obligated to carry out the intent and provisions of this memorandum of understanding, consistent with their legal authorities under the laws of the State of Nebraska.

6. The provisions of this agreement may be modified from time to time by mutual agreement of the parties hereto, in consultation with the Regional Administrator, Environmental Protection Agency, Region VII. Any such modification shall at a minimum be in accordance with any State or local formally adopted plan pursuant to Section 208 of the Clean Water Act of 1977, or any rules or regulations promulgated pursuant thereto.

7. The term of this memorandum of understanding shall be the same as that provided in article 2 of the contract between the United States and the Reclamation District, Contract No. 14-06-700-8394, unless otherwise terminated.

[From the Lincoln (Nebr.) Star, Mar. 12, 1984]

STOPPING NORDEN IS STILL COUNCIL'S TOP PRIORITY

By George Hendrix of the Lincoln Star

In its third year, the Nebraska Water Conservation Council has found it necessary to broaden its priorities.

They now are:

—Stop the Norden Dam.

—Support and promote Nebraska surface and ground water quality.

—Stop the Norden Dam.

—Support legal recognition of and protection for in-stream flows.

—Stop the Norden Dam.

—Support water-project financing policies that would have those who benefit directly from the projects bear the costs.

—Stop the Norden Dam.

"Previously, we were concentrating exclusively on the deauthorization of the Norden Dam," reports Mike Dennis, executive director of the council.

The social action organization was formed in late 1981 by environmentalists and other Norden opponents.

Truth is, the council's statement of purpose lists Norden, the controversial irrigation project, once. Not four times.

That doesn't mean the listing above is an overstatement.

Norden remains at the top of the council's priority, viewed as a "clear example of wasteful government spending and poor resource management."

The dam, which would be built on the Niobrara River east of Valentine, is as ardently supported by irrigation and corporate interests as it is opposed by environmentalists.

Work on the project has been on hold since 1977. A trial on whether the project can begin will be held late this year.

The Council feels it has made enough progress on the Norden issue, helping turn public opinion against it and pressuring politicians at a national level, so that it can divert some of its energy.

It has begun lobbying the Legislature this session on the various issues dear to it, and Dennis is the council's registered lobbyist.

The anti-Norden campaign continues.

"We are staking our case on the economics of the Norden Dam," Dennis said, "and winning our case at the door."

Attempting to win at the door is the method the council has used all along.

Paid canvassers, often college students, have spread the council's anti-Norden message across the eastern two-thirds of the state, at the same time soliciting signatures on petitions opposing the project.

They also solicit money at the door. The canvassers consistently have raised enough money to support the council's activities and an office staff of from four to 16 workers, the size depending upon the number of canvassers on the payroll.

The council's method of raising money, and its success at it, sets it apart from other social action groups in this state.

Most groups rely on direct mail campaigns, membership dues, occasional phone solicitations, a few generous patrons and grants from other organizations.

Still, they often find themselves financially strapped.

Dennis joined the Lincoln-headquartered council last summer. He had been with a Wyoming social action group, the Powder River Basin Users Council, financed through various methods.

"Then to come to here to an organization solely supported by citizens, I was amazed. I was frankly amazed."

In a financial report filed with the Lincoln city clerk's office, the council reported collecting $40,000 during its local campaign in July and August 1982. It reported expenses of $35,893.

If Dennis is amazed by the council's success at solicitation, some of those being asked for donations are irritated.

Occasional complaints are filed with officials in the municipalities being canvassed.

Still, the council has a clear record with the Cornhusker Better Business Bureau and the consumer fraud division of the attorney general's office.

In Lincoln, which is canvassed annually, the city attorney's office reported no problems.

Dennis argues that it is unfair to focus solely on the money-making aspects of the canvassing.

"It isn't just a solicitation device," he said. "It's the device we've used for grassroots political support."

Still, it is the money-raising aspect that many of those being canvassed best remember about the organization.

Katherine Hare heads the council canvass.

She had been one of its canvassers for two years. During that period, she said, the two biggest contributions she recieved were both $50. Most are in the $5 range.

Hare said canvassers try to knock on 120 doors each night. Of that number, someone will be at home at about 80 homes, someone will answer the door at 60 of those, 40 will be willing to listen.

Ten will make donations, Hare said. "Those are also the people you get your lobby support from."

There is a fair amount of rejection, Dennis concedes.

"I think that door-to-door campaigning as a rule has a lot of rejection," adds Hare.

"As much rejection as there is, there are people out there who are glad we are there."

The council seems constantly to be searching for canvassers. It advertises often in the help-wanted classifieds of the Lincoln Star and the Lincoln Journal, using an ad entitled "environmentalist."

The ad says canvassers can make from $160 to $200 per week. But, Hare confirms, they must average $400 a week in donations or be fired.

Both the type of job and its requirements discourage many applicants.

Hare said that only one in 10 of those applying would, after finding out what they would be doing, "even want to come out and try it."

Those who take the jobs usually are in it for more than money, she said.

"I think you have to be politically motivated."

Phil James is chairman of the Sierra Club's Nebraska Chapter. He also is chairman of the Nebraska Water Conservation Council board, one of the group's founders, and one of its prime admirers.

"It's tremendous," he said. "It's probably one of the most effective groups to shape public policy that there is."

The group has definitely caught the attention of Norden Dam supporters, who found time to level invective at the council and the Sierra Club at a recent meeting of the Niobrara Basin Development Association.

At that meeting, Jack Hart, who had been in the administration of former Gov. Charles Thone, charged the groups with "spreading untruth and exaggeration that is poisoning the minds of the people against water development in the state."

James takes a different view of which side of the issue is spreading untruth and exaggeration. The success so far of the anti-Norden canvass and its continued success at the door, depend on the veracity of the information on which the case against the project is based, he said.

"It's very important that what you are telling them is the absolute facts, the truth."

The measure of success gained by Norden opponents has bolstered confidence.

James argues the confidence was in place at the beginning, when the council formed. Even then, he said, there were plans to broaden the charter of the council beyond Stop the Norden Dam.

"Because it had a very good basic list of people who knew how to do the work. And we knew there was going to be a point where the Norden Dam would no longer be viable."

STATEMENT OF DAYLE E. WILLIAMSON, EXECUTIVE SECRETARY, NEBRASKA NATURAL RESOURCES COMMISSION

A representative of the Nebraska Natural Resources Commission has customarily appeared before your Subcommittee during your annual appropriations hearings. This year, we have chosen not to testify but would like our statement entered in the hearing record.

Our comments on the O'Neill Unit, the North Loup Division, the Papillion Creek project, general investigations, and Missouri River Bank Stabilization follow.

O'Neill Unit

The Commission continues to be a proponent of the O'Neill Unit. The proposed project is located in an area of the state that will require integrated management of surface and ground water to insure continued agricultural productivity. Intensive groundwater irrigation development for the past 25 years has caused significant groundwater level declines. Yield to wells is diminishing or inadequate in some of the area due to well concentration and limited aquifers. The surface water to be supplied by the authorized project would supplement existing groundwater and provide water to some lands that are not now irrigated.

The project was authorized by Congress in 1972. Since that time, a number of environmental concerns have arisen and litigation associated with these concerns has caused inordinate construction delays. The Norden Dam and Reservoir on the Niobrara River has created the most controversy. A ruling from the U.S. District Court is expected late this year.

Last year's budget bill authorized and funded an alternatives study to determine if the major project objective of integrated management of ground and surface water could be achieved without building the dam. The Nebraska Department of Water Resources is conducting those studies and expects to have them completed in this calendar year.

When the lawsuit is settled and the alternative study is completed, the Commission will find it much easier to comment on budgetary needs for the project. In the meantime, we do support the $600,000 requested by the Bureau of Reclamation for fiscal year 1985 to resume preconstruction work on selected features of the project.

North Loup Division

The Commission has long been a strong supporter of the North Loup Division. The project is essential to a long range water management scheme for the state. During the past year, Commission members had the privilege of viewing the Calamus Dam under construction, a rare opportunity indeed. We commend Congress for moving ahead with this important project and urge that $30,497,000 be included in the FY 1985 budget to complete construction of the Calamus Dam and Section I of the Mirdan Canal as well as providing for the continuation of land acquisition and work on other facilities.

Papillion Creek Flood Control Project

The Papillion Creek Basin in the Omaha area is the most populous area of the State of Nebraska and has the highest potential for flood damages. As a result it is imperative that we complete the project features that have been started (dam sites 18 and 20) while at the same time we continue to look for ways and means of dealing with the remaining flood problems in this area. The continued funding of the U.S. Army Corps of Engineers restudy is essential to the efforts of the local people to find solutions to their flood problems and therefore the Commission strongly supports its continued funding.

General Investigations

Studies listed under the "General Investigations" category for the Bureau of Reclamation also have our strong and continuing support. Our agency will work closely with the Bureau of Reclamation on the Prairie Bend feasibility study. This study, in conjunction with the Platte River Options Study, is essential to our state level effort of considering future uses of Platte River water. We encourage continued funding for both the Prairie Bend feasibility study and the Platte River Options Study.

Bank Stabilization on the Missouri River

This year, we would like to make a special and strong plea to your Subcommittee to provide an appropriation to the Corps of Engineers to continue bank stabilization work on the Missouri River on the reach between Gavins Point Dam and Ponca State Park. This stretch of the river is a federally declared National Recreation River under the Wild and Scenic Rivers Act. This designation provides a narrow range of opportunities to develop and manage the river. Mechanical stabilization of the banks of the river may be about the only maintenance that may be applied under the terms of the federal authorization. Such stabilization is most essential to the adjacent agricultural lands.

Much thought and concern has been expanded on this section of the river. Over the years the Commission has enjoyed a close working relationship with a group of citizens banded together as the Missouri River Bank Stabilization Association. That organization has made many appearances before your Subcommittee. With the support of the States of South Dakota and Nebraska and others, the group has been successful in encouraging Congress to provide funds for several bank stabilization demonstration projects along the river.

However, in recent years the demonstration work has ceased and unfortunately we are told that even maintenance of these sites has been dropped. We feel it is most unfortunate this important activity has been abolished and we do ask for careful reconsideration. Therefore, the Natural Resources Commission is pleased to join with Governor Robert Kerrey, the Missouri River Bank Stabilization Association, and many others in requesting an appropriation to reinitiate bank stabilization work on this important stretch of the river.

The Nebraska Natural Resources Commission appreciates the opportunity to provide this statement for the hearing record.

STATEMENT OF JACK ODGAARD, EXECUTIVE VICE PRESIDENT, NEBRASKA WATER RESOURCES ASSOCIATION

Mr. Chairman and members of the committee, this formal statement with attachments is submitted for the record on the hearings for continuation of the O'Neill Unit reclamation project of the Pick-Sloan Missouri Basin Program. It is submitted on behalf of the officers, directors, and more than 5,000 members represented by the Nebraska Water Resources Association who urge your continued support for financing and construction completion of the O'Neill Unit that was authorized by the Congress in 1972.

In past testimony and presentations made in support of the O'Neill project, I have detailed the numerous benefits of the O'Neill project to its area, the State of Nebraska, the region, and the nation. These have included the economic impacts, the value in food production and maintenance of a significant area of family farm operations, enhancement of jobs and employment opportunities, energy conservation, water quality and environmental enhancement, fish and wildlife and outdoor recreation needs and opportunities, and social benefits.

My testimony of last year reviewed the strong support there is for the O'Neill project, including the local support shown in two elections held on the project in 1979, and the overwhelming statewide support indicated for the project in a special hearing conducted by the Nebraska Legislature's Public Works Committee in 1982. At that hearing more than 50 individuals testified representing some 47 organizations and nearly 300,000 members in support of the O'Neill project. That compared to 25 people in opposition representing 12 organizations with fewer than 1,600 members.

The organizations that supported the O'Neill project in that hearing included statewide, regional, and local entities. Among those were county boards and city councils; natural resources districts and irrigation and reclamation districts; statewide and area and local water and resources organizations; statewide agricultural organizations; chambers of commerce, business organizations, and labor organizations; sportsmen organizations; and other local organizations.

Since environmental litigation was filed against the O'Neill project more than seven years ago, several additional studies have been undertaken and completed by the federal government in furtherance of the Final Environmental Statement, as part of the environmental impact requirements of federal law. All of the environmental issues have been satisfactorily addressed for the federal district court, and the final hearing on the last two studies is scheduled for December of this year. The two remaining issues that are expected to be adequately addressed to the satisfaction of the court are dam stability and economic alternatives to the project.

Because the O'Neill project has been one of a dozen or so such projects targeted for deauthorization by national environmental organizations, and because the project in this time has not had the strong and united support it formerly enjoyed from among Nebraska's congressional delegation -- as do targeted projects in other states, the Congress in recent years has directed two separate studies to be undertaken to consider alternatives to the project as originally and currently designed.

One such study of several alternatives was completed two years ago and concluded that no other alternative was economically feasible. The second study is a joint federal-state study of a specific alternative to construction and use of the Norden Dam and Reservoir to meet the project needs. It is being led by the State of Nebraska, and is scheduled to be completed early next year.

During the past few years, with the less than unanimous support for the O'Neill project among Nebraska's congressional delegation, those environmental organizations that oppose water development projects have stepped up oppositon and made concerted efforts to have the O'Neill project deleted or deauthorized in the Congress, and to have public opinion and opposition expressed to the project.

The Congress and the federal government generally seek new information from testimony on projects and programs during hearings such as this, and in keeping with our efforts to accommodate those desires, the Nebraska Water Resources Association in this hearing will present brief information about the misinformation and falsehoods being spread by the various environmental organizations in opposition to the O'Neill project.

We believe this is extremely important, and that the Congress should be made aware of this false information because it is upon those false and misleading statements that we have seen congressional statements made in opposition to the O'Neill project. It is unfortunate that the news media today, particularly that far removed from the area in which an issue is concentrated, so often accepts as fact and truth statements made by one side or group in an issue without even attempting to verify the accuracy and authenticity of the statements.

Yet that is precisely what has happened in such publications as the Wall Street Journal, New York Times, and others. The false and misleading information is being disseminated in magazines, brochures, newsletters, and correspondence produced by such organizations as the Audubon Society, Sierra Club, Wildlife Federation, and Nature Conservancy.

We have copies of these publications and articles, and we are aware that much of this material has been distributed from the corporate headquarters or Washington-based offices of these organizations to members of Congress. Because of their volume and number, and the probability that they have been widely distributed among the Congress, we will not include them with this statement for the record.

We will be happy to provide copies for any mbmers of Congress who wish to have them, but with this statement we submit copies of new material that the Congress will not be familiar with. Those items, we believe, will help the members of the committee and the Congress understand the lengths to which water conservation development opposition organizations will go to influence the public and our elected officials. Hopefully, by having the truth and facts for comparison with the false and misleading information being disseminated, members of Congress other than those of the appropriations committees who are more informed, will be able to address correspondence and concerns of contituents raised because of the fraudulent mail and propaganda campaigns of these opposition organizations.

I will summarize the major discrepancies here, and then provide copies of two new papers that documents the falsehoods and misinformation being perpetrated. As the members of the committee know, major emphasis in such campaigns to discredit projects, programs, or issues, is arranged to appeal to the emotions of the public. Such statements as "environmental destruction," "$2.3 billion cost to the taxpayers," and "flooding of 55,000 acres to benefit huge corporations" are the emotional but false statements that appeal to the public.

The false information in the brochures and pamphlets distributed by the Audubon Society, Sierra Club, Nature Conservancy, and others are now part of an organized door-to-door campaign being conducted by a new organization that was formed as a coalition of representatives of these groups in Nebraska. That group, the Nebraska Water Conservation Council, is attempting to get signatures on unofficial petitions to be used by supporters of the environmental organizations in the Congress.

The major issues in that campaign and in the literature being distributed by the opposition organizations, involve numerous falsehoods. Among them the following statements and allegations, often conflicting even among the organizations and their literature, are included with the true facts:

(1) Allegations: The project will inundate more than 30,000 acres; it will

flood 30,000 acres to irrigate 40,000 acres; it will inundate a 55,000-acre wildlife refuge. Fact: The reservoir will have a surface of 6,300 acres, it will irrigate 77,000 acres, and it will not inundate a wildlife refuge.

(2) Allegations: The project will destroy the Niobrara River, it will reroute the river, and will destroy a unique ecological area. Fact: It will not reroute the river or destroy it. The Norden Reservoir will be only 19 miles long of the more than 430 miles total length of the Niobrara River. It will not destroy the river but will add a beautiful reservoir for fish and wildlife and outdoor recreation.

(3) Allegations: The project will cost $1 billion to $2.3 billion, and it will be paid for by the taxpayers. Fact: The current estimated cost of the project is under $380 million, and the project will be repaid by irrigators and from power revenues of the Pick-Sloan program.

(4) Allegations: The project won't affect the water table or ground water levels. It won't provide any benefits, and there are little or no ground water problems in the area. Fact: The project area has severe ground water declines that the project will reverse and stabilize. Without the project, a large area of farmland will be without water in the near future.

(5) Allegations: The project isn't going to be good for recreation. It's not even decided if recreation will be included. Fact: Recreation plans include thousands of acres of developed and undeveloped land for public access. Anticipated outdoor recreation use is 300,000 visitor days per year. New sport fisheries and migrating waterfowl habitat will be provided that does not now exist.

Numerous other false and misleading statements have been made about the O'Neill project and its Norden Dam and Reservoir. These five major issues are mentioned because they are the basis of the emotional and false campaign being waged against the O'Neill project.

The two attachments that accompany this statement bear out the use of this false and misleading information by opponents of the project. The first of these is a transcript from a tape recording made May 25, 1982, of a presentation made by a representative of the Nebraska Water Conservation Council to a resident of Omaha, Nebraska; and the second is a synopsis of notes taken at a similar presentation given to two Lincoln, Nebraska residents on February 8, 1984.

Additional copies of these and other materials are available for the committee and any members of Congress. The facts about the O'Neill project, including all of the issues falsely presented by opponents of the project, are contained in the brochure we have available entitled, "Noden Dam and Reservoir: Saving Nebraska's Water for Nebraska."

WATER CONSERVATION COUNCIL DOOR-TO-DOOR SOLICITATION
AND CAMPAIGN AGAINST O'NEILL PROJECT
Transcript from taped discussion between
Dave Segal, NWCC representative
and Gene Meyer of Omaha, Nebraska
May 25, 1982

Segal: It's just too much damage, too many farmers hurt much more than helped, and too much money for very little benefit. We shouldn't have to pay that unless it's a sure thing.

Meyer: What's it going to cost us?

Segal: One to $2.3 billion is the absolute maximum figure for it now. That keeps going up each year. It takes nine to 10 years to build it, too, and you have to index for inflation and interest rate and all that. The fiscal people put the $2.3 billion on it and $1 billion is what some of the other folks have said.

Meyer: And you're with who?

Segal: The Nebraska Water Conservation Council. We're set up specifically, at least originally, to kill this project. We may have another purpose after that. We're totally citizen funded. Privately! That's part of our citizen contributions at the door. No one's given major amounts, that's what makes it authentic actually. Folks help out with whatever they can--small amounts--$5, $10, $15, $20, you know, straight from the heart rather than major grants and all that.

Meyer: Do you have a list of citizens who have contributed?

Segal: Yeah, I was going to show you that in a minute. I wanted to explain a couple more little things to you. We've been going throughout the state the last 5½ months to keep going over this thing. It costs too much more...too much damage...

Meyer: What about the water level?

Segal: It's not really going to affect the water table. Our main water table is the Ogallala aquifer. It covers under most of Nebraska. The 200 ranchers that are going to benefit from this project...only a few aren't over it...a microdot on the map. That separate area.
This is the project area. A very small area of the state. Best canoeing river in the midwest is going to be flooded and a great wildlife refuge.

Meyer: What river's that now?

Segal: Niobrara River. It's going to reroute the river south of the river with the dam. This is the project that's going to benefit 200-250 ranchers and farmers (mostly ranchers). Most of those ranchers want to go from raising cattle to growing feed corn. You probably noticed already the surplus feed corn on the market and, wow, that makes it just a little more silly. We shouldn't be funding someone to grow excess feed corn or any surplus crop. But we know that they are going to do that. And these are Bureau stats.
The Ogallala Aquifer comes through all the midwest and goes down to Texas and everything. The most plentiful part of the U.S. as far as water supply. This right under here is a separate aquifer. They're not hurting real bad either so it's not worth us spending $1-$2 billion to replenish what little bit that separate aquifer will get us. And I will explain the technicalities but... A lot of the geology underneath is non-seepage. It won't seep through and help the aquifer that much anyway. As one professor put it, you could do it in the towns of Atkinson and O'Neill to kingdom come and they're not going to get water to replenish their aquifer.
All those are reasons why we're against it, and we're just trying to take and... against government standards.

Meyer: Okay, you're telling me that I should sign this to say that I'm against that Norden Dam project. I'm nowhere at all on it because I don't know that much about it. You're telling me that the only good that dam is going to do is going to be for recreation so if I want to go with my family...

Segal: Not recreation...irrigation. It's not even going to be good for recreation.

Meyer: Couldn't it be used for recreation?

Segal: It could but the thing that's tough about that is it's going to have a 22-foot drop in the off season. That's a heck of a long ways to drop a boat and they haven't even decided whether or not they're going to...

Meyer: In other words, during the winter time it's going to go down 22 feet?

Segal: No, not the winter time, the summer time when you would do the boating.

Meyer: Why will it drop so much?

Segal: Because of irrigation. Sure, it's almost solely an irrigation dam. You stock up over the winter and early spring and when they start irrigating crops it drops, drops, drops, and by the middle of May it's down 22 feet. You got a big mud flats and a big muddy reservoir. It's not enjoyable where you can slide down a 22 foot mud bank with a boat and they haven't decided whether they're going to replenish it with fish or not anyway.

Meyer: I don't know if I buy the thought that thing will not replenish the water level or whatever.

Segal: The next thing I can tell you to do really is to get the specific Bureau stats. I'm feeding you the generals. I'm not a technician. I'm an expert as far as general knowledge.

Meyer: I'm from a small farming community in Iowa. It's a lot different up there I guess in the sandhills where they need water. I've got a friend who said their crops have increased from like 40 bu. an acre up to what, 125-130 bu. an acre through irrigation.

Segal: We're not against irrigation and we're not against damming. It's just this particular dam. We think it's bad for so many reasons. We don't think it's going to do any good, like I said. I tell you what, why don't I leave this basic information with you. You're interesting to talk to, I could probably stand here and talk all night. You brought up some valid points, too.

Meyer: I'll leave you with a thought, too. Irrigation is fine, I probably will. But I think that with the economy the way it is and I don't see it getting much better around here; if we had a place like that where you, I, the kids all could go for recreation in Nebraska...the industry that would create...the jobs that could create...

Segal: Sure, that's part of the argument and even that, that's another detailed situation extrapolating whether or not how much of that is true or not. We just don't think it's worth it especially since you're sacrificing greater recreation. The only whitewater canoe river, a lot of fishing and hunting going on up there and a lot of folks flock to that area by the thousands every summer anyway. They take advantage of that.

Meyer: What's your name?

Segal: Dave Segal. Get ahold of us if you have questions. We have information in the office. We are in Lincoln so it's kind of rough, but when you're in Lincoln...

Meyer: How many guys are you working around here?

Segal: About 10. Thanks much, appreciate it. Check into it.

SYNOPSIS OF HOME PRESENTATION AND DISCUSSION
by the Nebraska Water Conservation Council
to Jack and Sandra Odgaard
Lincoln, Nebraska

February 8, 1984

Introduction

I'm working for the Nebraska Water Conservation Council and we're going door-to-door to tell people about the Norden Dam and to get signatures and contributions to help educate people and stop the Norden Dam. We're also working on other projects and bills in the legislature.

Norden Dam

NWCC: It will be built on the Niobrara River near O'Neill. That's where the project gets its name, the O'Neill project. It's going to irrigate corporate land, but it will ruin the Niobrara River. It is a biological crossroads where six ecosystems come together. It's the only place like it in North America. It will destroy the river for the corporate farms.

Question: When did this project start? Answer: It started back in the 1930s when it was a good idea. But now all of the farmland is irrigated, they don't need the water, and the dam will ruin the river.

Question: What's the bottom line here? Answer: The bottom line is that we are losing 30,000 acres and irrigating 40,000 acres. It is a $1 billion project. The main promoters are Prudential Insurance Company. This will benefit them and about 250 farmers. The farmers now have central (sic) pivot irrigation. Prudential wants it because it's too expensive to put in central (sic) pivot irrigation.

Question: What about the other 249, the farmers who might want the project? Answer: The other 249 farmers have central (sic) pivot irrigation and might want it because it's cheap water.

Question: What about ground water recharge from the project? Answer: Governor Kerrey introduced LB 1106 last Thursday that would be a start to handle ground water recharge. These are some of the things we're looking at, to leave water in the rivers for ground water recharge.

Question: You've said the dam will ruin the river. How much water will it use and how much will still be left in the river? Answer: I don't know how much water, but it will flood 30,000 acres. You're going to lose 30,000 acres that are going to be under water.

Question: You said the project got started in the 30s. Surely Prudential didn't own the land then. Wasn't there support for the project by the farmers? Answer: That's right. But after the farmers put in central (sic) pivot irrigation Prudential bought land to be able to get cheap water. On the other side, Virginia Smith supports the project. She can say that I got this pork barrel for Nebraska. Some state legislators, the Army Corps of Engineers, and some citizens are for it. It's going to provide cheap water.

Question: Why would Virginia Smith need to do that, for political reasons? She wins her elections big, by more than 80%. Answer: Most of her district is Republican.

Question: What about support for the Norden Dam? Answer: It will go up near O'Neill. It's in DeCamp's district. I stop at some houses where people think it is the greatest thing going. But we've gone back to other homes of people who have signed the petition and they've said you mean it hasn't been stopped yet?

Question: What's it going to cost? How will we pay for it? Answer: A tax on our utilities will pay for this. The federal government will tax your utilities. It's like the TVA a little bit. They haven't figured out how much the utilities are going to go up.

NWCC and Lobbying Efforts

Question: So, what is the NWCC all about? Answer: We're trying to eduate the people and do the work so we can continue lobbying Congress and working against the Norden Dam. I'm a poli-sci major and saw an ad in the paper. I work from 1 to 10 p.m. every night. We get to the Capitol and listen in on hearings. LB 1106 was one.

Last year we got the funds frozen on the Norden Dam. We have to keep up. We have files that we read and re-read to keep up. They flood us with them. I'm not one to keep up with statistics.

Question: Are all of the workers students like you or where do they come from? Answer: Most are students but some aren't. I just started with the Water Council. There are several different organizations, and they move around quite a lot. Their members move in and out of each other's groups. For instance, the regular girl who is in charge at the office is sick and there's a girl running it now from Virginia.

Opposing Points of View

Question: We've read a lot about this, and you have presented your position but nothing on the other point of view. If you're trying to educate people, wouldn't it be good if you could present something that showed your arguments and the other view side by side so people could really understand the differences? Why don't you use something like this, a brochure or something, that presents it in a way that people can make a comparison? Answer: We have thousands of our things, but only one on the other side. It's at our office and we get to read it there.

[From Omaha World-Herald, Apr. 2, 1984]

NORDEN DAM: JUST THE FACTS

Sierra Club spokesman Bob Warrick was too quick to defend inaccurate statements that have been made in the campaign against the damming of the Niobrara River.

Warrick would have been better advised to disavow some of Dave Segal's inaccurate statements and to say that such tactics are not condoned by the Nebraska chapter of the Sierra Club or the Nebraska Water Conservation Council.

If opponents of the dam are concerned about their credibility, they ought to guard against distortions that could make it more difficult to raise legitimate concerns about the project.

But Warrick minimized the inaccuracies.

Segal had been hired to participate in a door-to-door lobbying and fund-raising campaign against the Norden Dam in 1982. At one stop at an Omaha home, Segal's remarks were recorded. Backers of the dam are now using the recording as part of an effort to show that dam opponents have distorted the issue.

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Segal said the O'Neill project, of which the Norden Dam would be part, would cost $1 billion to $2.3 billion. He said the Niobrara would be rerouted and that a great wildlife refuge would be flooded.

Most people, hearing those statements, would form an impression that is contrary to fact.

Warrick acknowledged that the government's estimate of the cost for building the O'Neill project is $374 million. He said the figure given by Segal represented the cost of repayment over 50 years figuring inflation, government borrowing, interest rates and other factors.

The rerouting of the Niobrara? Of course not, Warrick said. Segal was apparently referring to the fact that water would be transported by canal from the reservoir to the area to be irrigated.

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Destruction of a wildlife refuge? Segal didn't mean a precise wildlife refuge. He was referring to the valley as a whole.

It wasn't only Segal. Backers of the dam also singled out a leaflet distributed by opponents of the dam in which it is written that 30,000 acres of land would be inundated. Warrick said just 6,300 acres would be inundated. The 30,000 figure refers to all the land that would be taken for the project, he said.

The Water Conservation Council's door-to-door campaign generated 120,000 signatures and about $300,000 from Nebraskans. It is impossible to know how many people were influenced by inaccurate statements.

Many Nebraskans are conservationists and lovers of wildlife. The Sierra Club ought to be held in high regard. But it's difficult to do so when it participates in — and defends — a campaign that uses distortions.

NATURE OF PROJECT OPPOSITION

Mr. DRAYTON. There is one thing I would like to have you read, the last two pages of that statement, to see where our opposition comes from. It comes from 200 or 300 miles away from the project area. It is as unfair situation as was ever concocted. I would like to have you read it. It tells exactly what is going on out there. The whole thing is on those two pages, it is very interesting. I think everybody should understand that is an environmental action.

Senator EXON. I have one question.

Senator STENNIS. All right, Senator.

EFFORTS TO REDUCE PROJECT COSTS

Senator EXON. Mr. Drayton, there was a recent newspaper story that I saw that came out of the office of the Bureau of Reclamation in Grand Island that indicated that the production and cost studies for the original Norden Dam and their study to cut down the cost, and I applaud the Bureau for that, I think that is excellent. One thing that puzzles me a little bit was that they now say one of the cost saving features of their study is they are going to cut down the amount of land around the reservoir area that would have been required. I guess my question on that is—and I wonder if you can shed any light on it—I should be asking the Bureau, but they are not here. If they needed less land around the reservoir area from the beginning and if they now say they can save moneys from what they have been telling us for 20 years this dam would cost, why did they not take that into consideration? Why didn't they save that in the initial instance or is it another situation where the Bureau tends to overbuild and overspend taxpayers' money?

Mr. DRAYTON. No. I think you will find that the land taken around the reservoir in all cases, the Bureau of Reclamation, the Government, I think about everybody, I don't know of any difference. They take a 40-acre tract touching the water line, they take the whole 40. This redrawing that we asked for cuts it down to 10-acre tracts. That eliminates quite a few acres around there. Then also the game department asked for 97 acres to set aside for the turkeys to run around. Well, I don't think the turkeys running there is going to help the project so we asked them to remove that. They have another little dam put up that is going to be built on the first one. We didn't keep that; it is not going to make the water yield any better. We asked for those to be removed.

Senator EXON. So essentially what you are saying is that it was because of you and others started looking at less costly means of completing the original structure and they came up with these new possibilities?

Mr. DRAYTON. Well, we asked for a reanalysis and told them what we thought. They have other plans, too. The canal they think should be plastic lined for much less cost. They have deer escape methods now on the Ingram project to get the deer across without drowning. That saves 30 miles of heavy fences which is very expensive and maybe that will come out in a different light. We are cooperating. We are not pitting one against the other. We want to see the final figures on both matters and that is where we are.

Senator EXON. Thank you for your excellent testimony.

Mr. Chairman, I just wanted to say that I have covered in my statement that was submitted for the record the other matters that were addressed here this morning for the introduction of people who will be testifying sometime during the hearing regarding the Missouri River and the North Platte.

Senator STENNIS. Thank you very much, gentlemen. These matters deserve proper attention and I hope things come out well.

Mr. Kent Miller, you have 5 minutes.

PLATTE RIVER, NEBR., FLOODING AND EROSION

STATEMENT OF KENT O. MILLER, GENERAL MANAGER AND DISTRICT ENGINEER, TWIN PLATTE NATURAL RESOURCES DISTRICT

Mr. MILLER. Mr. Chairman, Senator Exon, I am Kent Miller, general manager and district engineer for the Twin Platte Natural Resources District.

Nebraska's 24 natural resource districts are local political subdivisions of the State of Nebraska created to conserve, protect, develop, and manage the natural resources of the State.

I will summarize my testimony and request that the full text be incorporated in the record. If you would, in the testimony I have presented there is a map of the State of Nebraska on the back of the testimony that you might wish to refer to that will help with our testimony.

I am testifying today in regard to flooding and erosion problems along the Platte River and its tributaries, the North Platte and South Platte Rivers, in Nebraska. Joining me in this testimony is Dale Wahlgren. Dale is a farmer along the Platte River immediately below the confluences of the North and South Platte Rivers. He is also president of the newly formed Platte River Flood Control Association. Immediately following my remarks, Dale will present the flooding and erosion problems along the Platte River from personal experience.

FUNDING REQUEST

We are proposing today that $500,000 be allocated to section 55 of Public Law 93–251 authority for U.S. Army Corps of Engineers technical assistance to develop bank stabilization measures for the following sites:

1. Thirteen-mile reach of the South Platte River from Hershey to the confluences of the North and South Platte Rivers east of the city of North Platte.
2. Five-mile reach of the North Platte River from 2 miles west of the U.S. Highway 83 to the confluences of the North and South Platte Rivers east of the city of North Platte.
3. Twenty-eight-mile reach of the Platte River from the confluences of the North and South Platte Rivers east of the city of North Platte to the Lincoln/Dawson County line—includes the 18-mile long Brady Island.

Benefits and justifications: One, Experiences severe problems annually; two, demonstration model of a typical reach that would be beneficial basinwide; and three, provides an urgently needed plan and design of measures needed and the costs for the demonstration reach.

This proposal is to utilize existing U.S. Army Corps of Engineers authority that currently is not funded.

Second, I am proposing today that the U.S. Army Corps of Engineers authority that existed in section 32 of the Water Resources Development Act of 1974 and expired on September 30, 1982, authorizing bank stabilization demonstration projects again be reauthorized and funded for the Platte River.

The reach previously proposed by me for technical assistance could be incorporated as the first demonstration project that I believe will meet Federal guidelines for construction and would provide a wide variety of measures in a short reach that could be used throughout the basin.

We believe that this demonstration project could be constructed to ensure that specific reaches are looked at where something will be done. We certainly do not need another study with no facilities constructed.

My companion, Dale Wahlgren, will now continue our testimony. When Dale has completed I have another matter that I would like to comment on very briefly.

[The statement follows:]

STATEMENT OF KENT O. MILLER, GENERAL MANAGER, TWIN PLATTE NATURAL RESOURCES DISTRICT

Mr. Chairman, members of the committee, I am Kent O. Miller, general manager and district engineer for the Twin Platte Natural Resources District.

Nebraska's 24 natural resources districts are local political subdivisions of the State of Nebraska created to conserve, protect, develop, and manage the natural resources of the State. Districts, which were established in 1972, consolidated the functions previously performed by soil and water conservation districts and watershed conservancy districts. The Nebraska Legislature, in creating natural resources districts, recognized the significant achievements that had been made in the conservation, protection, development, and management of the natural resources and declared that the most efficient and economical method of accelerating these achievements was to create natural resource districts encompassing all of the area of the State.

The Twin Platte Natural Resources District is located in west central Nebraska where the North and South Platte Rivers come together to form the Platte River.

I am testifying today in regard to flooding and erosion problems along the Platte River and its tributaries (North Platte and South Platte Rivers) in Nebraska. Joining me in this testimony is Dale Wahlgren, a farmer along the Platte River immediately below the confluences of the North and South Platte Rivers, and president of the Platte River Flood Control Association. Immediately following my remarks, Dale will present to you the flooding and erosion problems along the Platte River from personal experience.

I am proposing today that $50,000 be allocated to section 55 of Public Law 93–251 authority for U.S. Army Corps of Engineers technical assistance to develop bank stabilization measures for the following site.

1. Thirteen-mile reach of the South Platte River from Hershey to the confluences of the North and South Platte Rivers east of the city of North Platte.
2. Five-mile reach of the North Platte River from 2 miles west of U.S. Highway 83 to the confluences of the North and South Platte Rivers east of the city of North Platte.
3. Twenty-eight-mile reach of the Platte River from the confluences of the North and South Platte Rivers east of the city of North Platte to the Lincoln/Dawson County line (includes the 18-mile-long Brady Island).

BENEFITS/JUSTIFICATION

(1) Experiences severe problems annually; (2) demonstration model of a typical reach that would be beneficial basinwide; and (3) provides an urgently needed plan and design of measures needed and the costs for the demonstration reach.

This proposal is to utilize existing U.S. Army Corps of Engineers authority that currently is not funded. The design of measures for this demonstration reach would provide a plan developed by the river experts that could lead to a Federal, State, and local cooperative effort to maintain the river banks and reduce the flooding now experienced.

The Army Corps of Engineers tell us that rural land in the Platte basin cannot show an adequate benefit-cost ratio to justify Federal assistance. I, however, believe that this reach, which experiences severe flooding and bank stabilization problems annually, provides a unique opportunity to prove if Federal assistance could be justified for some rural reaches in the Platte River basin. If Federal assistance proved not to be possible, the plan and design developed for the demonstration reach, would provide very valuable information for the State and local agencies and the landowners that would be used to solve the problems in the reach as the State and local funds were available. It would also provide examples of measures that could be used in other problem reaches in the Platte River basin.

Second, I am proposing today that the U.S. Army Corps of Engineers authority that existed in section 32 of the Water Resources Development Act of 1974 and expired on September 30, 1982, authorizing bank stabilization demonstration projects again be authorized and funded for the Platte River.

The construction of demonstration projects at selected key locations along the Platte River and its tributaries would be a very logical beginning for a future comprehensive bank stabillization project throughout the Plate River and its tributaries basin.

The reach previously proposed by me for technical assistance could be incorporated as the first demonstration project that I believe will meet Federal guidelines for construction and would provide a wide variety of measures in a short reach that could be used throughout the basin.

The authority language should specify precisely in what reaches of the Platte River the demonstration projects could be constructed to ensure that specific reaches are looked at where something will be done. We certainly do not want available funding to be spread so thin that all we obtain is another study with no facilities constructed. The language could also incorporate into the authority the administration's cost-sharing policies and requirements for local operation and maintenance as needed.

My companion, Dale Wahlgren, will now continue our testimony. I will be happy to answer any questions you may have at the conclusion of Mr. Wahlgren's remarks. Thank you for your kind attention.

STATEMENT OF DALE L. WAHLGREN, PRESIDENT, PLATTE RIVER FLOOD CONTROL ASSOCIATION, INC.

Senator STENNIS. Thank you very much, Mr. Miller.

You are next, Mr. Wahlgren.

Mr. WAHLGREN. Mr. Chairman, Senator Exon, I am Dale L. Wahlgren, president of the newly formed organization called the Platte River Flood Control Association. The association was formed to obtain a solution to the habitual flooding that has and is occurring on the Platte Rivers in Nebraska.

I am a farmer rancher living on the Platte River just below the diversion dam east of North Platte, Nebr. This farm has been in the family and has been farmed since 1918. My testimony reflects not only the views of the Platte River Flood Control Association, but my own personal views from the perspective of a farmer who continually deals with the problems of the Platte River.

We have had major floods on the Platte River in 1965, 1973, 1974, 1979, and 1983 with high water problems every other year and are expecting a flood for this year. The flooding problems have become almost a yearly occurrence. I have lived and farmed in this area for 14 years and the flooding has become more severe over the years.

Probably the most severe and damaging circumstance in the Platte River is the vegetation growth that has developed over the last 40 years. The growth has gone on virtually unchecked since large amounts of water were diverted from the basin. This problem is more severe in the area of the Brady Island area because of the construction and operation of the tri-county diversion dam at North Platte. that area that was outlined by Mr. Miller.

The south channel of the Brady Island has been virtually cut off because of vegetation growth and sand mismanagement by Tri-County Irrigation District. The presence of vegetation in the north channel in the form of small islands also causes the water flows to move slower and, therefore, higher flows in the same size channel. As the islands grow in size the result is that the outside banks of the river have more pressure and higher stages of flow resulting in severe erosion. That erosion is eating away at our prime farm ground and wildlife habitat areas and it will get progressively worse unless something is done. It will cost more if we wait.

The second problem is mismanagement of water flows in the river. We may see above-flood-stage levels one week and a week later the river flow is cut to virtually nothing. The very low flows for an extended period of time is the primary cause of vegetation growth in the river channels. Tri-County has not been willing to alter flows on the North Platte River. Willingness to do so could substantially decrease flows below the confluence of the North Platte River and the South Platte River.

Third is that U.S. Interstate 80 was constructed in a flood plain and has restricted flows on the river and has created a dam to hold water on farm land and commercial property. Due to the restriction of water flows, flood waters cut off the village of Brady from access to Interstate 80 for a period of 2 months in 1983. This situation caused severe hardship for businesses and farmers that needed that access to conduct business. State roads and bridges were not constructed to handle the river flows that we are receiving.

No State or Federal agencies were willing to accept responsibility for the flooding or for maintenance of the river. During the flood of 1983 we asked for help in preparing for the flood. Help was requested from the public utilities who control the water flows, from State water agencies, the Governor's office, the State civil defense office, the State adjutant general's office, and the Corps of Engineers. Very little was done. We did receive a little help, but not very much.

One answer by State officials was that money was only available to rebuild after a disaster, not to prevent a disaster. Most State officials felt the Corps of Engineers were responsible for the river; however, the Corps of Engineers said they had no programs to address the types of problems we were experiencing. In the flood of 1973, 10 years ago, the village of Brady requested help from the Corps and nothing was done. The farmers who live along the river do not have the resources to fight floods of this magnitude. Many of them are in financial trouble because of persistent losses from flooding. In Lincoln County, Nebr., alone there was reported in excess of $3 million of damage in 1983 alone due to flooding. There is the potential of the damage occurring again in the next 3 months and very little help has been offered.

The farmers and other property owners who live along the Platte River have absolutely no input as to how the operation of the dam that controls water flows past our property is operated. Central Nebraska Public Power and Irrigation District has a board of directors that is elected from a three-county area 150 miles east of Kingsley Dam, yet they control most of what occurs in the Platte River through Nebraska. Federal and State law has given them the right to store, use, and divert water from the Platte Rivers, but has given them no responsibility to consider the welfare of those who live along the river.

The other half of the problem is the uncontrolled water that passes through the South Platte River into the Platte River. If the Narrows project in Colorado was a reality and it was built with flood control in mind, it could help prevent part of the flooding problem on the Platte Rivers in Nebraska.

Due to the persistent flooding, and the reluctance of State and Federal officials to do anything, many landowners have attempted to stabilize banks and construct dikes to protect their own land. This haphazard system has resulted in the larger, more financially successful landowners building structures in the river that has forced water over to the landowner on the other side of the river and caused more severe flooding on his land. Here again we must be critical of the State and Federal agencies that have the responsibility to issue permits and enforce their use or violation. Many landowners have constructed illegal structures in the river without any repercussion from controlling agencies. The irrigation or power companies seem to have no trouble gaining permits to do whatever they desire but private landowners have a decidedly more difficult time gaining a permit to do work in or near the river.

Senator STENNIS. I am sorry to interrupt you but the rest of your written statement will be put in the record. You have used up your time.

Mr. WAHLGREN. Thank you.

[The statement follows:]

STATEMENT OF DALE L. WAHLGREN, PRESIDENT, PLATTE RIVER FLOOD CONTROL ASSOCIATION, INC.

Mr. Chairman, members of the committee, I am Dale L. Wahlgren, president of the newly formed organization called the Platte River Flood Control Association. The association was formed to obtain a solution to the habitual flooding that has and is occurring on the Platte Rivers in Nebraska. The association consists of approximately 100 paying members, which include the villages of Maxwell and Brady which have populations of approximately 1,000 persons, from west of Ogallala east to Gibbon. The association is continuing to grow on the heels of a major flood in 1983 and the prospects of the same in 1984.

I am a farmer-rancher living on the Platte River just below the diversion dam east of North Platte, Nebr. My testimony reflects not only the views of the Platte River Flood Control Association, but my own personal views from the perspective of a farmer who continually deals with the problems of the Platte River.

HISTORY

We have had major floods on the Platte River in 1965, 1973, 1974, 1979, and 1983, with high water problems several other years. The flooding problems have become almost a yearly occurrence. I have lived and farmed in this area for 14 years and the flooding has become more severe over the years. The height of the water in the river has increased with the same amount of water in the river due to the sand deposits and vegetation obstructions in the river that has gotten progressively worse. I have lost thousands of dollars from flood damage to crops.

The problems of flooding in the Platte River basin are complicated and difficult to verbalize. I will, however, attempt to categorize the problems and, with the use of photographs taken during the flood of 1983, hope to show the committee the reality of the problems.

The area that I will be discussing is the area of the east city limits of North Platte to the Brady area. The problems that exist in this area are prevalent for many other stretches of the Platte River basin. I will use this area because it is what I am most familiar with.

Problem 1.—Probably the most severe and damaging circumstance in the Platte River is the vegetation growth that has developed over the last 40 years. The growth has gone on virtually unchecked since large amounts of water were diverted from the basin. This problem is more severe in the area of the Brady Island because of the construction and operation of the tri-county diversion dam at North Platte. The dam was built so as to force the majority of water passing the dam to flow into the north channel of the Brady Island area. Water could not enter the south channel except when the north channel would not handle the water, therefore, causing flooding of both channels. Sand buildups at the diversion dam was pumped over the dam and would wash into the vegetation and build up causing further restriction of the channels. The south channel of the Brady Island has been virtually cut off because of vegetation growth and sand mismanagement by tri-county. The presence of vegetation in the north channel in the form of small islands also causes the water flows to move slower and, therefore, higher flows in the same size channel. As the islands grow in size the result is that the outside banks of the river have more pressure and higher stages of flow resulting in severe erosion. That erosion is eating away at our prime farmground and wildlife habitat areas. It will get progressively worse unless something is done. It will also become more costly if we wait.

Problem 2.—Problem 2 is mismanagement of water flows in the river. The releases of water from Lake McConaughy are very erratic to say the least. We may see above-flood-stage levels one week and a week later the river flow is cut to virtually nothing. The very low flows for an extended period of time is the primary cause of vegetation growth in the river channels. Tri-county has not been willing to alter flows on the North Platte River to compensate for the uncontrolled flows on the South Platte River. Willingness to do so could substantially decrease flows below the confluence of the North Platte River and the South Platte River. Tri-county has maintained that they are not in the business of flood control, but yet they continually mention flood control as one of the historic purposes of Kingsley Dam in their environmental impact statement for the building of the Kingsley hydroelectric plant.

Problem 3.—U.S. Interstate 80 was constructed in a flood plain and has restricted flows on the river and has created a dam to hold water on farmland and commercial property. Due to the restriction of water flows, floodwaters cut off the village of Brady from access to Interstate 80 for a period of 2 months in 1983. This situation caused severe hardship for business and farmers that needed that access to conduct business. State roads and bridges were not constructed to handle the river flows that we are receiving.

Problem 4.—No State or Federal agencies are willing to accept responsibility for the flooding or for maintenance of the river. During the flood of 1983, we asked for help in preparing for the flood. Help was requested from the public utilities who control the water flows, from State water agencies, the Governor's office, the State civil defense office, the State adjutant general's office, and the Corps of Engineers. The only agency that gave any help was the State civil defense office which paid for the use of a tracked vehicle to haul sandbags. The vehicle was owned by Nebraska Public Power

District and was requested to be donated for use to fight the flood. That donation request was refused and was then paid for by civil defense. All other requests for help were not acted upon. One answer by State officials was that money was only available to rebuild after a disaster, not to prevent a disaster. Most State officials felt the Corps of Engineers was responsible for the river. However, the Corps of Engineers said they had no programs to address the type of problems we were experiencing. In the flood of 1973, the village of Brady requested help and nothing was done. Our county officials did everything that they could do to help but they do not have the resources to fight floods. The farmers who live along the river do not have the resources to fight floods. Many of them are in financial trouble because of persistent losses from flooding. In Lincoln County, Nebr., alone there was reported in excess of $3 million of damage in 1983 alone due to flooding. There is the potential of the damage occurring again in the next 3 months and very little help has been offered.

Problem 5.—The farmers and other property owners who live along the Platte River have absolutely no input as to how the operation of the dam that controls water flows past our property is operated. Central Nebraska Public Power and Irrigation District has a board of directors that is elected from a three-county area 150 miles east of Kingsley Dam, yet they control most of what occurs in the Platte River through Nebraska. Federal and State law has given them the right to store, use, and divert water from the Platte Rivers, but has given them no responsibility to consider the welfare of those who live along that river.

Problem 6.—The other half of the problem is the uncontrolled water that passes through the South Platte River into the Platte River. If the Narrows project in Colorado was a reality and it was built with flood control in mind, it could help prevent part of the flooding problem on the Platte Rivers in Nebraska.

Problem 7.—Valuations of property have tumbled because of habitual flooding problems on the Platte. Landowners along the river are unable to sell property at a fair market value and lending institutions are unwilling to loan capital to would-be purchasers if the property has been flooded. Yet tax valuations on this property has gone up or stayed the same. In many instances, farm values per acre have dropped 50 to 60 percent in recent years. As a result, many farmers and property owners living along the river are in financial crises.

Problem 8.—Due to the persistent flooding and the reluctance of State and Federal officials to do anything, many landowners have attempted to stabilize banks and construct dikes to protect their own land. This haphazard system has resulted in the larger, more financially successful landowners building structures in the river that has forced water over to the landowner on the other side of the river and caused more severe flooding on his land. Here, again, we must be critical of the State and Federal agencies that have the responsibility to issue permits and enforce their use or violation. Many landowners have constructed illegal structures in the river without any repercussion from controlling agencies. The irrigation or power companies seem to have no trouble gaining permits to do whatever they desire, but private landowners have a decidedly more difficult time gaining a permit to do work in or near the river.

Problem 9.—Wildlife has been damaged by the erratic flows and flooding of the Platte River. During the flood of 1983, wildlife of all kinds was scrambling to find a place of safety away from the water. Many deer were killed trying to cross highways to safety. In our area, a flock of 50 or more wild turkeys are no longer there. The ascetic value of living along a river is also jeopardized.

Problem 10.—The safety of dams on the Platte system, including Kingsley Dam, is a concern to many citizens. The levels at which the lakes are maintained provide no flood control and no margin for error. Many times the extremes of Mother Nature are not considered. The year 1983 is a prime example. We were continually told that the Corps of Engineers, Bureau of Reclamation, and the power and irrigation districts did not know how much it was going to snow in April and May. We maintain they should be prepared for the worst that Mother Nature could have in store. They are playing games with public safety if they are not. Central Nebraska Public Power and Irrigation has repeatedly violated private safety recommendations in the past year. Another safety problem is the water surrounding the landing strip at the North Platte Airport making electronic landing machinery inoperative.

We must have a solution to the problem of flooding on the Platte River if we are to continue to make it economically feasible to live and produce from the land in this valley. We concede that power and irrigation has, and will continue to be, a vital part of the State's economy, and we do not wish to stop any of that development. Therefore, we must address the growing problems that power and irrigation development has created on the Platte River without jeopardizing power and irrigation development in Nebraska.

We, therefore, wholeheartedly support the proposals and testimony put forth by Kent Miller and the Twin Platte Natural Resources District.

Members of our organization that do not live in the proposed area are supportive of the appropriation for use in the area outlined by Kent Miller. They also agree that enough money must be put into a specific area as to see the use of that money go for constructive services rather than for only studies and expense accounts. We do not need studies only, but rather action, that proves to the people that government does, in fact, respond to the needs of the people.

I would like to thank you for giving me the opportunity to testify to the committee. I would be happy to answer any questions you may have.

LETTER FROM LARY KRACMAN, MAYOR, BRADY, NEBR.

JUNE 15, 1973.

MR. JEROME WOODS,
Area Engineer,
Florence Frea, Omaha, Nebr.

DEAR SIR: The village of Brady is officially asking the Army Corps of Engineers to send a representative to our board meeting on July 11, 1973, at 7:30 p.m.

We are in the process of trying to organize flood control measures for the village as well as surrounding farmlands. We will set up a flood control district from where the rivers meet at North Platte to Brady. This would require a survey, etc.

I would like you to let me know if you can come so I could notify the proper channels and media.

Very truly yours,

MAYOR LARY KRACMAN.

VILLAGE OF BRADY, NEBR.

July IIth 1973

A Regular Meeting of the Chairman and the Board of Tustees of the Village of Brady, Nebraska, was held at the town Hall in said Village, at 7.30 O'clock P.M. Present were: Chairman Larry Kracman Trustees Harry Discoe, Dale Fuller, Jack Snyder, ______________. Absent Van Claire Dewey
Notice of meeting was given in advance thereby by posting in at least three places as shown by the Certificate of Posting Notice attached to these Minutes. Notice of this Meeting was simultaneously given to the Chairman and all Trustees and a copy of their acknowledgement of receipt of notice and the agenda is attached to these Minutes. Availability of the agenda was communicated in the advance notice and in the notice to the Chairman and Board of Trustees of this Meeting. All proceedings hereafter shown were taken while the convened Meeting was open to the attendance of the public.

Meeting called to order by Chairman Larry Kracman. Minutes of last meeting read by Clerk also Bills paid for June and reciepts for June motion made to be aproved as read by Discoe second by Snyder.

The Market Street paving was discussed. Final count was 8 in favor IO against. So it did not carry.

Also the meeting had been called to find out what could be done to control the river at flood time. The Army Corps of engeneers and a number of oficials from Civil Defense department also two commisoners from Lincoln County. TheArmy Corp Engeneer said they only help when homes are flooded. So could not do any thing for us.

Then the men from the N.R.D. explained what they could do they could organize a flood district and finance it with a one mill levi and that will be considered by the District.

Bert Callahans would like to movethere house to higher ground and to get away from the dike that was built at flood time through there property. Motion made by Discoe second by Snyder to not charge them for water and sewer hoolups due to damage to there property but they will pay the water and sewer usage.

Sue Dewey and Betty huntsman appeared about Sue Dewey wants to buy a lot from Betty Huntsman and move a mobile home on it. will need about a half block of street that they will furnish ground for and water and sewer is close by. Motion made by Discoe second by Fuller for them to go ahead with there plans.

No more buisiness motion made to adjourn at IO.I5 P.M.

Victor Oman Clerk

NATIONAL WATER RESEARCH CENTER, NORTH PLATTE, NEBR.

Senator STENNIS. I am going to have to move along, gentlemen.

Mr. MILLER. Mr. Chairman, I have about 30 seconds of additional material that I would like to offer for the record. I do not plan to read it all.

Senator STENNIS. All right.

Mr. MILLER. I just would like to put the subcommittee on notice that the State of Nebraska is discussing the desirability of establishing a national water research center in North Platte, Nebr. I have some material here. We are not requesting an appropriation at this time, but I would like it to be made part of the record.

Senator STENNIS. Glad to have it, and we want everyone to have a chance to put in all the material they wish.

[The statement follows:]

STATEMENT OF KENT O. MILLER, GENERAL MANAGER AND DISTRICT ENGINEER, TWIN PLATTE NATURAL RESOURCES DISTRICT

MR. CHAIRMAN, ON ANOTHER MATTER, I WISH TO PUT THE SUBCOMMITTEE ON NOTICE THAT WATER POLICY LEADERS OF THE STATE OF NEBRASKA ARE CONSULTING AND DISCUSSING THE DESIRABILITY AND PRACTICALITY OF ESTABLISHING A NATIONAL WATER RESEARCH CENTER AND HYDRORAMA IN NORTH PLATTE, NEBRASKA, BECAUSE OF ITS UNIQUE LOCATION IN THE CENTER OF THE NATION WHERE GROUND AND SURFACE WATERS ARE AVAILABLE FOR STUDY.

I HAVE JUST MADE A PRESENTATION OF THIS IDEA TO THE SMITHSONIAN INSTITUTION, ON MARCH 26, AT THE INVITATION OF SMITHSONIAN OFFICIALS.

I WOULD LIKE TO MAKE THE SUBCOMMITTEE AWARE OF THIS PROPOSAL EVEN THOUGH I AM NOT REQUESTING AN APPROPRIATION AT THIS TIME AS IT IS AT ITS EARLIEST STAGES. NEBRASKA'S WATER LEADERS WILL BE PROVIDING ADDITIONAL DETAILS, COSTS, AND CHARACTERISTICS FOR THE SUBCOMMITTEE'S CONSIDERATION AT A LATER DATE.

I REQUEST THAT THE OUTLINE OF THIS PROPOSAL FOR A NATIONAL WATER RESEARCH CENTER AND HYDRORAMA IN NORTH PLATTE, NEBRASKA, BE MADE A PART OF THE RECORD.

(THE MATERIAL FOLLOWS)

HYDRORAMA AND WATER RESOURCE RESEARCH CENTER

Water - The Vital Resource

The water of our world sustains life and shapes our destiny
in its infinitely fascinating and challenging forms and conditions.
The availability and quality of water is the passport for the future,
most particularly in Inland America and the arid west.

Hydrorama - To Tell the Story

The Hydrorama will tell the story of water and its uses
in an array of displays to entertain and educate.

Water Resources Research Center

North Platte and Nebraska provide the ideal setting
in the middle of the nation and North American Continent
with ground and surface waters available
in a varied climate for the unlimited study of water.

Focus and Mission

Nebraska and America greatly need to expand programs in research and education of water supplies, water quality and water's relation to other natural resources. The availability and quality of the world's water is a potential crisis everywhere necessitating a water consciousness for all.

Research Mission

In Nebraska over 90% of water uses relate to agriculture. Modern and comprehensive research facilities are needed by the academic institutions, government and industry. The Hydrorama and Water Resources Research Center will explore the most effective management systems for:

1. Water management and availability, including groundwater recharge.
2. Water quality, in particular as affected by fertilizers, pesticides and herbicides.
3. Conservation tillage and dryland farming to maximize effectiveness of limited water resources.
4. Range management from wet meadows to dry rangeland.
5. Irrigation scheduling and conservation.
6. Soil erosion control.
7. Effective and safe uses of Sandhills land.
8. Alternate energy sources for water pumping.
9. Expanded roles for perennial vegetation.

Education Mission

The education mission will be multi-faceted array of facilities and displays for the General Public, Educators, Students and Scientists:

1. As a component of the present degree programs of the University of Nebraska, State Colleges, Community Colleges, and other institutions for study tours, independent projects and study and classroom instruction.
2. As a new dimension for graduate programs for the University of Nebraska.
3. As the hub of extension services to the agricultural and water community.

4. As a site for conferences, seminars, and professional in-service training and re-training programs.
5. As the focal point to educate and entertain the public about water.

Key Components

The Hydrorama and Water Resources Research Center will have several components:

1. Water Resources Research Center

   Significant components of the newly combined UNL Water Resources Center and the Conservation and Survey Division would be located on the property of the UNL West Central Research and Extension Center. This unit would direct research efforts concerning availability and use of state water resources. Commitment of additional resources to research and education regarding water is consistent with high priority recommendations of task forces of the UNL "Agriculture 2001 Committee" recently presented to the University of Nebraska Regents.

2. Sandhills Agricultural Laboratory II

   This research unit, already planned to be relocated near North Platte, will conduct intensive irrigation research on Sandhill land, particularly on Valentine and Dunday soil types.

3. North Platte Station irrigation management research

   This on-going research program at UNL West Central Research and Extension Center studies cropping systems under growing conditions of dryland, limited and full irrigation.

4. Hydrorama exhibit

   The Hydrorama is the place to tell the stories of inland water. The exhibition area is planned to be located on UNL property south of I-80 interchange.

5. Dryland Farm

   Five miles south of North Platte is the headquarters of UNL's ecofarming research program, which in ten years has moved from pilot work on 600 acres to adoption on more than one million acres of Western Nebraska dryland farms.

6. Other related components

   a. Gudmundsen Sandhills Laboratory near Whitman conducts research on wet meadows and Sandhills dry range.
   b. Automated weather stations located throughout the state provide accurate weather and climate information.

Integrated and Interdisciplinary Effort

The Hydrorama and Water Resources Research Center will be an integrated and interdisciplinary look at water. Included will be cooperative work with the following UNL departments or special fields:

1. Agricultural Economics
2. Agronomy
3. Climatology
4. Engineering
5. Entomology
6. Forestry, Fisheries, Wildlife
7. Geology
8. Life science
9. Plant pathology
10. Soil science
11. Weed science

Water Resources Research Center

To concentrate water resource research efforts in a stragegic geographic-geological area, it is proposed that the University of Nebraska locate significant components of the combined UNL Water Resources Center and the Conservation and Survey Division in the North Platte area. This venture would create a sufficient critical mass of professional staff, research projects, increased identity and enlarged commitment of the University of Nebraska to water research, to provide critical regional and national focus on this new unit.

Siting

The proposed site is on a hill location on property of the UNL West Central Research and Extension Center overlooking an irrigation research site, the NPPD hydro plant, the Game and Parks Commission regional office and fish hatchery and the North and South Platte River valleys.

This new University unit will significantly enhance both the research and educational mission and increase public visibility among rural and agri-business segments of the population whose long term destiny is directly affected by water.

North Platte location advantages

Among the advantages of a North Platte location are:

1. UNL West Central Research and Extension Center already is conducting water and irrigation research and extension services.
2. This location reinforces the University's statewide commitment to comprehensive research, education and service.
3. The North Platte area lies in the middle of both major surface water and groundwater irrigation development areas.
4. North Platte is the major city nearest the water center of the Ogallala aquifer.
5. The area is central and convenient with easy access to Interstate 80 and to air service.
6. The area is on the edge of the Sandhills, encompassing both cropland and rangeland.
7. The area is part of the central flyway for migratory birds.
8. The area is at the confluence of North and South Platte Rivers and near other rivers.
9. Lakes nearby are both manmade and natural, some include hydro plants.
10. Varied climate offers many research options.
11. U. S. Weather Service station is located in North Platte, along with several automatic weather stations in the area.

Hydrorama Exhibit

The Hydrorama displays the story of inland water.

Audiences and uses

Among the myriad of beneficiaries will be:

1. Research scientists
2. Educators
3. Students
4. Agricultural groups
5. Water interest and conservation groups
6. General public

Exhibit possibilities

Hydrorama exhibits most likely will include a mixture of permanent and changing exhibits, indoors and out, illustrating both an understanding of the past as well as the possibilities of the future. The exhibits will be drawn from both public and private sources.

Some of the possible exhibits:

1. Demonstration of hydrologic cycle.
2. Contrasts in land environments due to water (such as desert, rain forest, etc.).
3. Soil erosion versus soil conservation practices.
4. Irrigation management and water/energy conservation practices.
5. Importance of water on soil profiles and crop decisions.
6. Understanding of ground water supplies and limitations.
7. Comprehensive picture of Ogallala aquifer including changes in water level.
8. Soil and water profiles of the Sandhills.
9. Effects of surface water impoundment.
10. Tracing water from storage through a canal system for power generation and irrigation.
11. Water and power.
12. Various irrigation systems (such as surface and pivots).
13. Farming methods to conserve soil, water and energy.
14. Critical relationship between water and wildlife.
15. Story of droughts, floods and blizzards.
16. Water pollutants and cures.
17. Water law, water regulation and effects.
18. Domestic water systems.
19. The acid rain controversy.
20. Life evolving from water.
21. Water and global hygiene and health.

Co-operating Participants

To maximize research and education efforts, cooperation will be sought from a wide variety of interested participants, both public and private. Included are:

1. University of Nebraska, including Institute of Agriculture and Natural Resources, School of Life Sciences-Cedar Point Biological Station, Dept. of Architecture, Department of Engineering, Morrill Hall, Sheldon Art Gallery, among others.

2. State of Nebraska, including Game and Parks Commission, Natural Resources Commission, Departments of Water Resources, Environmental Control, Agriculture, Health, Economic Development, and Education.

3. Federal agencies, including Bureau of Reclamation, Geological Survey, Environmental Protection Agency, Fish & Wildlife Service, Corps of Engineers, Dept. of Agriculture, and U. S. Weather Service.

4. Local political subdivisions, including Natural Resources Districts, Community Colleges, Public Power Districts, Irrigation Districts, Schools, Cities and Counties.

5. Associations and Foundations, such as Smithsonian Institution, Nebraska Historical Society and various other historical societies, water interest associations, conservation groups and foundations.

6. Business and industry, including irrigation, agricultural, financial and transportation companies.

MISSOURI NATIONAL RECREATION RIVER

STATEMENT OF EARL ROWLAND, PRESIDENT, MISSOURI RIVER BANK STABILIZATION ASSOCIATION, NEWCASTLE, NEBR.

ACCOMPANIED BY DARREL CURRY, VICE PRESIDENT, MISSOURI RIVER BANK STABILIZATION ASSOCIATION

Senator STENNIS. Mr. Rowland, you have the same time, 5 minutes. Identify the gentleman with you.

Mr. ROWLAND. Thank you, Mr. Chairman.

I am accompanied by Darrel Curry who is the vice president of our association.

Senator Stennis and Senator Exon, we appreciate this chance to appear before you on behalf of the Missouri River Bank Stabilization Association to testify regarding the fiscal year 1985 budget. We would like to request that the Missouri National Recreation River project, which was authorized in 1978, be included for funding this year. This project is a 59-mile stretch of the Missouri River between Gavins Point Dam near Yankton, S. Dak., and Ponca State Park, Ponca, Nebr. The project is authorized for $21 million to be spent over a period of years. About $600,000 has been spent on the necessary studies and environmental impact statements leading to construction.

For fiscal year 1985, $2.5 million is needed for construction and $200,000 for operation and maintenance of the structures already built in this reach of the river under the section 32 Streambank and Erosion Control and Demonstration Act, which ended in 1983.

Senator Stennis, I think you know as much about the section 32 program as we do because of the Yazoo River basin in Mississippi.

MAINTENANCE BANK STABILIZATION WORKS

To go on further with the maintenance, in a memorandum from the Director of Civil Works to the Omaha Division of the Corps of Engineers concerning the maintenance of bank stabilization structures in the Missouri National Recreation River," he says in summary:

> You should take the actions which are within your power to assure that the existing structures are maintained.

In the Division response he says:

> Operation and maintenance funding appears to be justified in advance of construction funding.

He goes on to say in summary:

> I have an existing uncompleted project that has not been funded for construction, but which contains structures that I am authorized and expected to operate and maintain. To permit our stabilization features to deteriorate would be a default I would find difficult to bear.

We would hope in these difficult times that if the committee cannot see its way clear to include the $2.5 million construction funding in the fiscal year 1985 budget that you would at least insert the $200,000 for operation and maintenance of the existing structures so we don't lose the $6 million worth of work already in place.

The title "Recreation River" is very misleading and causes us a lot of problems. I think to briefly explain, it is a project to protect the banks and timber areas. Senator Exon can vouch for some of the areas we have lost. In 1971 when he was Governor, we had a meeting of farmers in one of the most beautiful picnic sites along one of those timbered areas. That area is now a dead tree sandbar a half mile out in the river.

I think to really appreciate this a person should go on the river sometime when the sun is rising or setting and see a doe bring her fawn down to take a drink or see the ducks and geese. It is a beautiful area and we are losing a lot of land. If we don't get something done in the next few years, it is not going to be here for generations to come because with the economic crunch the farmers are in—the land next to me where Governor Exon met with the farmers, the fellow died and his wife has passed away now, they had to sell the land. The fellow that bought it, as folks here know, there is not a tree left on that place, there is just nothing but farmland. If we don't get something done pretty soon, the farmers cannot carry the brunt of it.

The funding we have requested from the committee and the final construction of the Missouri National Recreation River would do much to balance out this serious inequity in benefits, and providing a very desirable and long time effect in saving of the few natural areas and natural rivers in our Nation.

We would very respectfully ask that this project be funded in the amount of $2.5 million construction and $200,000 in operation and maintenance or, at the very least, the $200,000 for operation and maintenance as we are facing another year like last year of large inflows from the tributaries which could cause serious damage to several of our existing structures.

We thank you for the opportunity to appear before this committee and would be happy to answer any questions you might have.

[The statement follows:]

JOINT STATEMENT OF EARL ROWLAND, PRESIDENT, AND DARREL CURRY, VICE PRESIDENT, MISSOURI RIVER BANK STABILIZATION ASSOCIATION

Mr. Chairman and members of the subcommittee, we appreciate this chance to appear before you on behalf of the Missouri River Bank Stabilization Association to testify regarding the fiscal year 1985 budget. We would like to request that the Missouri National Recreation River project, which was authorized in 1978, be included for funding this year. This project is a 59-mile stretch of the Missouri River between Gavins Point Dam near Yankton, S. Dak., and Ponca State Park, Ponca, Nebr. The project is authorized for $21 million to be spent over a period of years. A total of $600,000 has been spent on the necessary studies and environmental impact statements leading to construction.

For fiscal year 1985, $2.5 million is needed for construction and $20,000 for operation and maintenance of the structures already built in this reach of the river under the section 32, Streambank and Erosion Control and Demonstration Act, which ended in 1983. The projects were all built under the guidance of a task force appointed by the Governors of Nebraska and South Dakota, consisting of State and Federal agencies, Corps of Engineers, and local interest groups. All of this was done as a result of an umbrella study done by the Corps of Engineers to complete the necessary work on the upper reaches of the Missouri above the navigable channel.

The authority for operation and maintenance of these structures is in the Missouri National Recreation River authorization, which states, "Any structure built or structures already built will be operated and maintained by the Federal Government who is the controlling agency." This was designed to preclude any problems caused by two different agencies working in the same area at cross purposes. The title "recreation river" is very misleading, as the main purpose of this project is to prevent bank erosion (which is caused in a large part by the building and operation of the main stem dams) and to preserve the timber, scenic beauty, and pristine values of the river for future generations, which they may never see if projects such as this are not completed.

In a memorandum from the Director of Civil Works to Omaha Division, Corps of Engineers, entitled, "Maintenance of Bank Stabilization Structures in the Missouri National Recreation River," he says in summary: "You should take the actions which are within your power to assure that the existing structures are maintained." In the Division response, he says: "Operation and maintenance funding appears to be justified in advance of construction funding." He goes on to say in summary: "I have an existing uncompleted project that has not been funded for construction, but which contains structures that I am authorized and expected to operate and maintain. To permit our stabilization features to deteriorate would be a default I would find difficult to bear."

We would hope in these difficult times that if the committee cannot see its way clear to include the $2.5 million construction funding in the fiscal year 1985 budget, that you would insert the $200,000 for operation and maintenance of the existing structures so we don't lose the $6 million worth of work already in place. Our greatest problem lies in the fact that the mainstem dams are doing such a wonderful job of preventing serious flooding in the lower reaches of the river, providing much needed hydropower for a larger area, providing navigation to Sioux City, Iowa, which is a huge benefit to businesses and cities all down the river, but providing us in our reach of the river with more serious erosion, troubles with irrigation intakes, loss of roads, and even buildings in several cases; so we bear the brunt of the losses as the lower reaches get the benefits.

A good example: In 1983, there were large inflows into the system in the lower reaches such as the Platte, Elkhorn, Soldier, Little Sioux, Big Sioux, to name a few of the tributaries running into the Missouri. In order to prevent flooding in southern Nebraska and Missouri, Gavins Point Dam was shut down to 6,000 cfs to prevent flooding, whereas in our area, it was dry and the river was so low many of our irrigation intakes could not reach the water. In later summer, releases were raised to 35,000 cfs to accommodate the hydropower and navigation interests, causing the erosion in our area to accelerate.

The funding we have requested from the committee and the final construction of the Missouri Recreation River would do much to balance out this serious inequity in benefits, also providing a very desirable and long-time effect in saving of the few natural areas and natural rivers in our Nation.

We would very respectfully ask that this project be funded in the amount of $2.5 million construction and $200,000 in operation and maintenance, or, at the very least, the $200,000 for operation and maintenance, as we are facing another year like last year of large inflows from the tributaries which could cause serious damage to several of our existing structures.

We thank you for the opportunity to appear before this committee and would be happy to answer any questions you might have.

STATEMENT OF MARY B. EDELEN, SOUTH DAKOTA STATE REPRESENTATIVE

It has come to my attention that your Committee will be holding a hearing on designating the Missouri River as a National Recreational River.

For those of us who live and represent the areas along the Missouri River in South Dakota, this is extemely important legislation. If there are ever going to be any improvements along this major river, Congress and the Administration must support appropriating more money.

There is a great need for bank stabilization and erosion control. It is a total waste of our land resources to see the bank fall into the river. Proper management needs to be made a priority of Congress so that this wasteful practice comes to a halt.

Please give this measure your very careful attention.

STATEMENT OF ANDY MORK, CHAIRMAN, UPPER MISSOURI RIVER BASIN BANK PROTECTION TASK FORCE

The Missouri Basin Bank Protective Task Force was organized in November 1983 by the local people and local county governmental organizations in areas adjacent to the Missouri River in Montana, North Dakota, South Dakota and Nebraska to address the severe bank erosion problem below several Pick Sloan Dams constructed on the Missouri River in these states.

At this time we are especially supportive of the request of the Missouri River Bank Stabilization Association of Newcastle, Nebraska (Chairman of this organization is Earl Rowland of Newcastle, Nebraska) to secure construction funding of $2,500,000 and maintenance funding of $200,000 for FY 1985. This funding is required to maintain existing bank protective projects built to date under Section 32 Streambank and Erosion Control Demonstration Act which ended in 1982, and for previously authorized new construction to protect several critical areas along the Missouri River from Yankton, South Dakota to Ponca, Nebraska.

These bank protection projects along the Upper Missouri River are very unique water related projects in that they are not isolated water projects, but are projects necessary to cope with the adverse effects of the construction of the Pick Sloan Dams. The great Pick Sloan Project has and is furnishing billions of dollars of benefits to many states and to the nation. We on the Upper Missouri River do not think it justifiable that we continue to suffer irreplaceable loss of land because of the operation of the Pick Sloan Project. Therefore, we are requesting your favorable response to our needs in your FY 1985 budget.

STATEMENT OF DON MEISNER, SIMPCO DIRECTOR

The Siouxland Interstate Metropolitan Planning Council (SIMPCO) and its Missouri River Preservation and Development Committee have long been active in many Missouri River Basin projects, issues and studies. We were very active in the preparation of the Missouri National Recreation River plan development and authorization. We have also been active in the location selection and evaluation of the Sec. 32 Demonstration Stream Bank Erosion Control Projects in the Yankton, South Dakota (Mile 811) to Ponca, Nebraska (Mile 752) stretch of the Missouri River.

We fully support the Missouri River Bank Stabilization Association in their efforts to gain funding ($2,500,000) for implementation of the Missouri River National Recreation River. We also fully support an authorization to allow federal operation and maintenance expenditures for the Section 32 Demonstration Stream Bank Erosion Control Project ($200,000) in the subject river reach.

Both of these proposed funding actions are consistent with the Congressionally approved Missouri National Recreation River Project.

STATEMENT OF ELROY M. HEFNER, NEBRASKA STATE SENATOR

I wish to go on record as being in support of the Missouri River Bank Stabilization Association efforts to obtain funding for the National Recreation River, that 59-mile section of the Missouri River from Gavins Point Dam near Yankton, South Dakota, to Ponca State Park near Ponca, Nebraska.

Please accept my letter in lieu of my appearance before your Committee, and enter it as part of the record of the proceedings of this matter.

STATEMENT OF MERLE VON MINDEN, NEBRASKA STATE SENATOR

I wish to go on record as being in support of the Missouri River Bank Stabilization Association efforts to obtain funding for the National Recreation River, a 59-mile section of the Missouri River from Gavins Point Dam near Yankton, South Dakota, to Ponca State Park near Ponca, Nebraska.

Please accept my letter in lieu of my appearance before your Committee and enter the same as part of the record of the proceedings in this matter.

Thank you.

STATEMENT OF TIM JOHNSON, SOUTH DAKOTA STATE SENATOR

As a State Senator from a distict which borders on virtually all of the South Dakota portion of the Missouri National Recreational River, I would like to take this opportunity to express my strong support for funding for the Recreational River project.

Please accept this letter in your committee records as evidence of my support.

Senator STENNIS. Thank you very much for your testimony.

Senator EXON. Thank you for your testimony.

I think it should be made clear, Mr. Chairman, for the record once again—and I think you will agree with this, Earl, and Darrel maybe you can comment on it if you continue the testimony. The reason this request is made is due to the construction of the Gavins Point Dam by the Corps of Engineers on the Missouri River—that is what has caused the bank erosion that we have been concerned about now for a long, long time. The Corps of Engineers has been most cooperative in this whole area. They say they can do it with the funds that we are requesting in this appropriation. That is essentially the message that you are trying to convey here, is that right?

Mr. ROWLAND. Yes; the main brunt of it is last year was a shining example when the Platte River, the Soldier River, the Little Sioux, and the Big Sioux, all of those rivers were contributing water below. They cut the flows at Gavins Point Dam to 6,000 feet per second, the lowest ever on record, and in our area we were dry. We went down to set up our irrigation outfit and the structures would not even reach the water. Later on in the year they needed water for navigation and with the hydropower they raised it up to 35,000 feet and we started getting erosion. So we are not getting any of the benefits, we are just getting the problem.

Senator EXON. The point is, Mr. Chairman, this has unfortunately not worked out as well as the board thought it would originally and we have to make some changes.

Thank you very much for your testimony, Earl.

Darrel, will you proceed.

Mr. CURRY. Senator Stennis and Senator Exon, I don't have any statement at this time due to the essence of time here.

Thank you.

Senator STENNIS. Well, you helped the cause by being here and we appreciate your coming by.

Let me take a half minute to share with you a true story that I like to tell to those of you who take the ups and downs in this program and have done the planning through the years to perfect these projects.

Right near to the end of World War II, you remember Japan had jumped on us at Pearl Harbor, I had a conversation with the general who had been appointed to take charge of all the records seized following the war. He found in there the record of the last meeting of the cabinet that you might call it. You know, they had more or less a military government there just at the last.

The American general went there and he found out that all the Japanese generals voted for making the attack on Pearl Harbor, the idea being to knock them out and hit them so hard they won't have the heart nor the nerve to fight back thereby giving them time to get the control of the Pacific. But nearly all the Japanese admirals voted no, voted against attacking Pearl Harbor, and he could not understand the reason for the difference until he found the answer in those records.

The admirals had been over here, a great number of them, and they had seen what we have and they had seen our waterways and our water transportation, harbors, everything that goes with it, and from that they got the idea of our resourcefulness and they understood better and they said:

> Don't ever believe those Americans will throw up their hands and surrender; they are going to fight back and they got the resources to do it.

You know, the admirals had been here and they had seen all this and they learned about our coal and everything else. And that is exactly what happened, of course. We fought back and the admirals were correct, they were better informed because they had a chance to be over here on various occasions and bring their ships; the generals had not.

I like to tell that story. He said that was a true story, he did the research himself. I like to pass that on to you people that work on these projects not for money but for love, a desire to do these things better than they were when you came along, building for the future, the future generations.

All right. Let's move along. As long as those two lights are on I will not get in trouble for failing to show up on the floor.

NEBRASKA WATER PROJECTS

ADDITIONAL PREPARED STATEMENTS FOR THE RECORD

Before I call the next witness, I understand that we have other statements covering various projects in Nebraska. Without objection, those will be made part of the record at this point.

[The statements follow:]

STATEMENT OF GOV. ROBERT KERREY OF NEBRASKA

This letter is written to express our support of the Bureau of Reclamation's Fiscal Year 1985 funding request of $30,497,000.00 for the continued construction of the North Loup Division. The North Loup Project will provide a full water supply to 53,000 irrigable acres, as well as providing recreation and fish and wildlife benefits.

My Administration is putting strong emphasis on improving the economy in the State of Nebraska. The agriculture and associated agri-business industries are the foundation of Nebraska's economy, and we continue to support the broadening and stabilizing effect of irrigated agriculture in the State of Nebraska.

The Ord-Burwell area where the North Loup Division is presently under construction continues to be a very bright spot in our State's employment statistics. Not only is the Project providing direct employment, but local businesses are expanding, new businesses have been started, and private investment to provide services associated with the recreational development of the Calamus Dam and Reservoir have been undertaken. These immediate effects of project construction are especially helpful during the current recessionary period; however, the real value of this Project will be the long-term stabilization effect on Nebraska's economy as a whole.

This past year, the State of Nebraska became the cost-sharing partner for the development of the recreation facilities for the North Loup Division. The Nebraska Legislature in its last session appropriated and I, as Governor, approved $125,000.00 for recreation cost-sharing for this fiscal year and $400,000.00 for the next fiscal year. This funding enables the Nebraska Game and Parks Commission to execute the June 17, 1983 cost-sharing agreement under the terms of Public Law 89-72. Under the terms of this agreement, the Nebraska Game and Parks Commission will be responsible for the design and construction for the recreation facilities at the Calamus Dam and Reservoir. The cost of such facilities will be shared 50-50 between the State of Nebraska and the United States.

We anticipate construction of the first recreation facilities late in the Summer of 1984. I look forward to completing this joint effort in the year 1986.

Again, we wish to thank your Committee for their past support and urge your continued support of the $30,497,000.00 Fiscal Year 1986 appropriation request for the continued construction of the North Loup Division.

STATEMENT OF WILLIAM E. NICHOL, SPEAKER OF THE NEBRASKA STATE LEGISLATURE

As the Energy and Water Development Committee begin hearings on major water projects, I would like to join other Nebraskans in asking for favorable consideration of continued funding for the North Loup Division Project. The recommended level of funding is set at $30,497,000.

Construction of the North Loup Project has significantly improved the employment opportunities in the area. Because of the benefits to the economy, fish and wildlife, recreation and agriculture, this Project will have a stabilizing effect for the State.

Your support in the past has been appreciated by all Nebraskans. It is hoped that the Committee will act favorably on the continued funding for this Project.

STATEMENT OF DONALD L. WAGNER, NEBRASKA STATE SENATOR

I would like to request your support for the 1985 FY appropriation to the North Loup Division, which lies within the legislative district I represent. The project has a broad base of support not only in the area in which it is being built, but throughout the state of Nebraska.

I strongly encourage you and your subcommittee to continue your support for the North Loup project which provides many economic benefits not only to the area but to the state and nation. More important than the short term effect of this project is the favorable future effect. The project will not only provide water for agricultural needs and recreation for those who follow us, but will be a valuable addition to fish and wildlife habitat.

I might add, that the Nebraska Legislature provided General Fund dollars in 1983 in the amount of $125,000 and in this fiscal year of 1984 an additional amount of $415,000 to match the federal dollars which provides for the recreational facilities at the Calamus Reservoir.

Once again, I thank you for your past support of this project, and encourage you to back the 1984 FY recommended appropriation of $30,497,000. You and your committee are to be commended for your hard work and long hours in working and supporting such projects as the North Loup Project.

STATEMENT OF RUDY KOKES, NEBRASKA STATE SENATOR

As a former Nebraska Senator from the legislative district which encompasses the North Loup Division Project area, I would like to voice my support of the 1985 FY appropriation for that project.

This project has had continuous support through the development and implementation stages. It will provide economic benefits both now and in the future. The construction of the project has already enhanced the surrounding communities and promoted growth. The future benefits of the project will be enormous, both for agriculture and wildlife.

I thank you for your past support and strongly urge you to continue the appropriations for this worthwhile endeavor.

STATEMENT OF JAMES E. PAPPAS, NEBRASKA STATE SENATOR

I am writing to urge your support of the North Loup Division Project which will be discussed in an upcoming hearing in the U.S. Senate.

The construction of the North Loup Project has significantly improved the employment opportunities in the Project area and will provide future benefits to the economy, fish and wildlife, recreation and agriculture. All in all, the construction will have long-term stabilization effects for Nebraskans.

The support by Congress for the North Loup Project in the past has been appreciated and we ask for your continued support.

STATEMENT OF HOWARD L. PETERSON, NEBRASKA STATE SENATOR

Continued funding for the North Loup Division Project will insure that the current construction on the project will go on, go on to provide Nebraskans with one project which conserves and manages its water resources.

Construction of the North Loup Division Project provides the region with healthy employment. Completion of the project offers real benefits to the future economy of Nebraska, to fish and wildlife, to recreation and agriculture.

Nebraskans appreciate your help--past, present and future.

Please do all you can for Nebraska and pledge your support to fully fund the 1985 recommendation appropriation for the North Loup Division Project.

STATEMENT OF ELROY M. HEFNER, NEBRASKA STATE SENATOR

I am writing this letter to you to urge you to support the appropriation bill for the funding for the North Loup Division Project (North Loup Irrigation Project) in Nebraska. I thank you for your past support.

I understand the hearing on this appropriation bill will be in the near future.

Construction of the North Loup Project is currently under way and is providing much needed economic benefits for both the local and State economy. However, the major benefit lies in the conservation and wise management of our water resources that we will provide for the future needs of the people and the economy of our State.

I am supporting the project and it has good local support. The Governor of Nebraska, along with the Congressional delegation, are also supporting the project.

I would like to thank the committee for their past appropriations, and your favorable consideration will be greatly appreciated.

STATEMENT OF LEE RUPP, NEBRASKA STATE SENATOR

Your committee will soon be considering the continued funding for the North Loup Division Project, the lower part of which is located in my Legislative District. I am writing to request your support for this project.

Construction of the North Loup Project is well underway. When completed, it will provide a means for conserving Nebraska's water. This comes at a time when Nebraska and surrounding states have become acutely aware of our water needs and the challenges of increasing demand and decreasing supply.

I thank you for your past support, and urge favorable action on appropriations for the North Loup Project.

STATEMENT OF HOWARD LAMB, NEBRASKA STATE SENATOR

It has been called to my attention that your Subcommittee on Energy and Water Development will be holding hearings with respect to the funding of water projects throughout the United States.

I certainly hope your committee gives favorable consideration to the North Loup Division Project here in Nebraska.

This project is very important to the well being of our State. Reports show that present construction is significantly improving employment and will continue to have long term stabilizing effects on our economy. This project will also provide much needed fish, wildlife and recreation for our citizens. Agriculture being our number one industry, derives benefits for that industry and has multiplying beneficial effects on all Nebraskans.

Water retention projects constructed in the past have had a tendency to raise ground water levels in these areas. Nebraska has areas with rapidly dropping water levels caused by ground water withdrawl. A project such as the North Loup will tend to offset these conditions.

Nebraskans are grateful to the U.S. Congress for its steadfast support of the North Loup Project in the past, I am hoping this will continue.

STATEMENT OF HARRY B. CHRONISTER, NEBRASKA STATE SENATOR

I would like to reaffirm my position of last year regarding the North Loup Division Project in Nebraska. It is a very worthwhile project and one that is necessary to maintain a healthy and thriving agricultural economic level in the state of Nebraska.

Construction of the North Loup Project has significantly improved the employment opportunities in the Project area. It has been a shot in the arm for the local and state economy. The greatest benefits of this Project are the long-term stabilization effects for Nebraskans. The North Loup Division will provide future benefits to the economy, fish and wildlife, recreation and agriculture.

The steadfast support by Congress for the North Loup Project has been greatly appreciated. However, beyond the economic benefits to the state of Nebraska, the economic and conservation impact upon the nation strongly supports continued funding for this project. For this reason, I again urge this Committee to grant the request for continued funding for FY 1985. Thank you for your consideration.

STATEMENT OF LORAN SCHMIT, NEBRASKA STATE SENATOR

Once again it is time for Congress to decide on the appropriations for Nebraska's North Loup Irrigation Project. I and many other Nebraskans have appreciated your past support for the North Loup Irrigacion Project and hope you will continue to support it.

The benefits of this project will have a long lasting effect on Nebraska's economy, as well as it's recreation and agriculture. Already it has supplied much needed jobs to many Nebraskans in the project area.

Your continued support for the North Loup Irrigation Project would be very much appreciated.

STATEMENT OF HAROLD F. SIECK, NEBRASKA STATE SENATOR

I would like to begin by commending you on the work and support you have given the North Loup Project here in Central Nebraska. I am confident we will have your continued support of this project until it is completed.

This project has been a tremendous economic boost to the Ord and St. Paul communities, and will be a tremendous asset to irrigation, recreation and the other benefits coupled with water development projects.

Your support for this project is vital to the State of Nebraska where we have a tremendous amount of uncontrolled water leaving the state. To assure a prosperous future for our state and this nation, we must build structures like the North Loup Project. The Senate, Congress and President must support these projects to continue planning for the future.

I have been disappointed with the delay in the construction of the Norden Project in North Central Nebraska. This project, known as the North Loup Project, would provide a tremendous economic boost to that area of Nebraska. It would also provide badly needed water for agriculture in this area. I know that alternatives to the Norden Dam are presently being studied to provide groundwater recharge to this area. More than groundwater recharge will be realized if construction of the originally authorized project were to take place, and I strongly feel this is what should be done.

Again, I thank you for the support you have given the North Loup Project thus far, and trust your support will continue for the good of agriculture and the nation.

STATEMENT OF R. WILEY REMMERS, NEBRASKA STATE SENATOR

As you probably realize, agriculture is the most important industry in Nebraska. Therefore, it is extremely important for Nebraska to build projects designed to conserve water resources for the future of our agricultural industry. I believe the North Loup Division Project would be a positive step toward preserving Nebraska's precious water resources.

As a State Senator, I understand the tremendous pressures and headaches involved in formulating a budget. I appreciate your work in this area and your past funding support for the North Loup Project. I respectfully request you to support continued funding for this project.

STATEMENT OF ROBERT L. CLARK, NEBRASKA STATE SENATOR

I have given my support to the North Loup Project the last several years and I appreciate the opportunity to again give my endorsement of this project.

It is my understanding that the 1985 recommendation is $30,497,000.00. Construction of the project has improved employment for those living in the area. The major benefit of preserving our water resources for the future will just be a portion of the benefits Nebraskans will receive from the project.

I hope that your committee will continue to take favorable action to allocate funds for this project.

STATEMENT OF MARTIN F. KAHLE, NEBRASKA STATE SENATOR

I understand you are again in the process of budgeting for the North Loup Division Project. I want to support the amount of $30,497,000.00, which would provide some supplemental funding for the year 1984 and also funding for fiscal year 1985.

This project is well underway and we are very pleased with its progress. I have a very deep interest in water conservation and irrigation as I have been a farmer and irrigator for many years and know the value of this type of project in this part of the country where rainfall is sparse at times.

We are very pleased that this project is coming into being and thank you for your past efforts. Please help us finish this project in Nebraska.

STATEMENT OF JOHN W. DECAMP, NEBRASKA STATE SENATOR

In view of the fact that water conservation is of the utmost importance to this and future generations and projects such as the North Loup Division provide the means for that conservation, I would ask that you give this project every consideration when it comes before your Appropriations Committee.

The need for water is basic to the necessitites of life and cannot be ignored while we continue to deplete the water supply. We must continue projects like this to take advantage of the water resources.

Therefore, I ask that your Committee act favorably on the 1985 fiscal year appropriation for the North Loup Division.

STATEMENT OF CALVIN F. CARSTEN, NEBRASKA STATE SENATOR

I would like to express my support for the North Loup Division Project.

Nebraska is built on agriculture, and agriculture depends upon water. The conservation and wise management of our water resources is one of our most critical needs and the only way to insure the future of agriculture in Nebraska.

I ask your Committee for favorable action on the appropriation for the North Loup Project for fiscal year 1985.

STATEMENT OF RAY E. LUNDY, NEBRASKA STATE SENATOR

Nebraska's water resources help to make agriculture the state's number one industry, and the North Loup Division Project has had a significant impact on employment opportunities in that area. This fact, and the acknowledged need for conserving our basic resources has convinced me that this project is one deserving high priority. It is for these reasons that I ask you to give favorable consideration for its funding.

STATEMENT OF JACK ODGAARD, EXECUTIVE VICE PRESIDENT, NEBRASKA WATER RESOURCES ASSOCIATION

On behalf of the officers, directors, and more than 5,000 members represented by the Nebraska Water Resources Association, I am writing to express our support for the fiscal 1985 appropriations to continue the construction of the North Loup Division reclamation project.

The $30,497,000 in appropriations for the next fiscal year is needed to continue the construction on this important project that was begun three years ago. In spite of the unusually wet weather conditions of the past two years, work on the Calamus Dam and Reservoir is progressing very well, and project supporters are anxiously looking forward to the first delivery of irrigation water in the next two years and to the availability of a sizeable new outdoor recreation facility.

We are particularly appreciative of your long-standing support and efforts on behalf of this important project. With the local project sponsors we are looking forward to dedication ceremonies in the next two years at which we hope to be able to have you and other members of Congress who have been supporters over the years properly recognized.

I also want to extend our deep appreciation for your courtesies and the kindness and assistance provided by your colleagues and staff during the years that we have been to Washington to work on behalf of the North Loup and other projects.

STATEMENT OF GORDON KISSEL, EXECUTIVE DIRECTOR, NEBRASKA ASSOCIATION OF RESOURCES DISTRICTS

Once again for 1985, the Nebraska Association of Resources Districts is pleased to endorse and support Nebraska and the local sponsor's request for funding the North Loup Division, Pick Sloan Missouri Basin Program for Fiscal 1985.

Need for continued funding of $30,497,000 for next fiscal year is set out in the Bureau of Reclamation's project data sheets.

Our organization has strongly supported this project for many years and is pleased to have had many of its members personally visit the construction site in recent months. We have always maintained the importance of projects such as this one to balance and enhance the agricultural industry and its economic impacts upon Nebraska and the nation.

Now that we have begun to make good progress toward completion of this most important project, it is indeed essential to continue the effort with all deliberate speed.

Thank you and your colleagues for continued national support.

STATEMENT OF WILLIAM HARTMANN, EXECUTIVE SECRETARY, NEBRASKA LAND IMPROVEMENT CONTRACTORS ASSOCIATION

This letter is being written in support of continued funding for the North Loup Project in Nebraska. Much could and will be written and said regarding the benefits of this project relating to increased business activity in the Ord, Nebraska area, as well as the stabilization of agriculture in Nebraska.

However, the members of the Nebraska Land Improvement Contractors Association would like to point out the benefits of the project relating to the conservation of soil and water. Not only will the impoundment of the water and its controlled distribution have a significant effect on soil erosion in the immediate area, the benefits will be felt downstream for hundreds of miles.

We compliment the chairman and the entire committee for their foresight in recognizing these and other benefits of this project and urge your continued support.

JOINT STATEMENT OF THE BOARD OF DIRECTORS OF THE TWIN LOUPS RECLAMATION DISTRICT AND THE TWIN LOUPS IRRIGATION DISTRICT

Mr. Chairman and Members of the Committee:

Over the past 15 odd years it has been our privilege to appear before your Committee in support of the North Loup Division - Nebraska. At those appearances we have historically presented numerous documentations of the broad support which the North Loup Division enjoys within our State. As we move further and further into the construction of this Project which when completed will irrigate approximately 53,000 acres of land in Valley, Greeley, Howard, Merrick and Nance Counties, Nebraska, this support continues to grow. We see individuals who previously objected to the Project are now inquiring how they might be served by the irrigation works. Although we could have presented another extensive documentation of Project support again this year, we choose instead to present a brief statement as Directors of the two sponsoring agencies, the Twin Loups Reclmation District and The Twin Loups Irrigation District.

This Statement will review the progress on the construction of the North Loup Project and some of the accomplishments we have achieved since our last presentation to your Committee on April 1, 1983.

The construction of the North Loup Division is well underway and is currently estimated to be 38 percent complete overall. The total Fiscal Year 1984 Program is $36,420,000 while the Fiscal Year 1985 Budget request presently before your Committee is $30,947,000.

We want to express our sincere thanks to this Committee for your support of past appropriations and look forward to your continued support as our Project continues through the construction process.

Although the past winer in Central Nebraska was extremely severe, recording record low temperatures and record snowfalls, we are anxiously looking toward Spring when the Contractors can again resume construction. Industrial Constructors Corporation of Missoula, Montana is the Prime Contractor for Calamus Dam, the 8 million cubic yard earthfill dam which will create the water storage facility for the North Loup Project. This Contractor holds contracts for about 40 million dollars, and currently has about 62 percent of the work completed. Calamus Dam and Reservoir is scheduled for completion in the Fall of 1984.

Hooker Brothers, Incorporated of Grand Island, Nebraska, has a four million dollar contract for relocation of the County Roads surrounding Calamus Reservoir. They have currently completed about 70 percent of the work and are scheduled to complete all work in August of 1984.

Commonwealth Associates of Jackson, Michigan, have completed about 25% of the $165,000 contract to salvage and mitigate cultural resource items in the Dry Creek Archeological District, within the Calamus Reservoir Area.

A contract for selective clearing and construction of fish habitat within the Calamus Reservoir is currently being negotiated with a minority business.

Western Contracting Corporation of Sioux City, Iowa, has a $20 million dollar contract to construct the First Section of Mirdan Canal consisting of 20 miles of concrete-lined canal with a capacity of 720 cubic feet per second. Western is currently 61 percent complete, with all work scheduled for completion in the Summer of 1985.

Last September, a $4 million dollar contract was awarded by the Bureau of Reclamation to A. & J. Construction Company of Homedale, Idaho, to construct 24 miles of buried pipeline distribution system in the Mirdan Service Area. The Contractor bid the polyvinyl cloride pipe option. The company has completed about 35 percent of the work and plans to complete all work by this Fall.

The Bureau of Reclamation has just awarded a $15.4 million dollar contract to Holloway Construction Company of Wixom, Michigan, to construct the 2nd and 3rd Sections of Mirdan Canal consisting of 28 miles of unlined-gravel stabilized open canal, along with 7 miles of unlined open laterals.

We, the directors, and our people within our Districts are anxiously awaiting the Spring of 1986 when initial irrigation is scheduled to begin. Completion of the aforementioned contracts will allow delivery of irrigation water to approximately 12,000 acres in 1986.

The Town of Scotia, at no cost to the Districts, has provided a tract of land just west of Scotia for the Districts' Headquarters. The site is centrally located and we, as Directors, are pleased to be coordinating with the Bureau of Reclamation in the design of an Operation Headquarters Building and Maintenance Yard which will be the hub of the Districts' operation and maintenance activity for the entire Project. We are informed that award of this contract is now scheduled for the Fall of 1984. Completion is anticipated in the Fall of 1985, giving our Districts adequate time to prepare for initial water deliveries in 1986.

The Board of Directors of both Districts are diligently pursing their responsibilities in the ultimate operation and maintenance of the North Loup Project. Early steps in the recruitment of a Manager to oversee the operation and maintenance of the entire system are under consideration. We Directors would like to assure this Committee that an adquate and competent operation and maintenance staff will be awaiting the delivery of water in 1986.

Last year on March 3, 1983, the Board of Directors of The Twin Loups Irrigation District finalized the 53,000 authorized acreage by granting the request of approximately fifty landowners to bring additional acreage into The Twin Loups Irrigation District. Some of these additional acreages are required to be incorporated into the Twin Loups Reclamation District. On February 27, 1984, these property owners formally petitioned the Twin Loups Reclamation District's Board for inclusion of their lands into the Reclamation District. The first public notice of said petitions was published on March 8, 1984, and a public hearing was set for March 26, 1984. Formal acceptance of these petitions and the inclusion of these lands within the boundaries of the Twin Loups Reclamation District will enable these landowners to receive irrigation service when irrigation water is made available.

In our presentation of a year ago to this Committee, we set forth in detail the steps the Twin Loups Reclamation District has performed, since before the authorization of this Project, to meet the cost-sharing obligations for construction of recreation enhancement facilities as required by Public Law 89-72. At that time, we stated the Twin Loups Reclamation District and the Nebraska Game and Parks Commission had worked out an arrangement whereby the Nebraska Game and Parks Commission would serve as the non-federal sponsor for the recreation enhancement of the North Loup Division and we were hopeful that the Nebraska State Legislature and Governor Robert Kerrey would see fit to provide the required financing. We are extremely happy to report that the Nebraska State Legislature passed and Governor Kerrey signed an appropriation of $500,000, with $125,000 available for expenditure this Fiscal Year and the other $375,000 to become available with the State's next Fiscal Year which begins on July 1, 1984. This appropriation enabled the Nebraska Game and Parks Commission and the Bureau of Reclamation to execute the cost-sharing agreement on June 17, 1983. Under the terms of this agreement, the Nebraska Game and Parks Commission will be responsible for the design and construction of all recreation facilities and the cost will be shared 50-50 between the State and the United States.

Although the State's Fiscal Year and the Federal Fiscal Year are not the same, the proposed total construction program for the recreation facilities is $200,000 in the Federal Fiscal Year of 1984 and a proposed program of $800,000 for the Federal Fiscal Year of 1985, with the remaining program scheduled for Fiscal Year 1986. The construction of the first recreation facilities in anticipated this Summer, prior to the initial filling of Calamus Reservoir.

As reported to you last year, the Ord-Burwell area continues to be a "bright spot" with a higher employment rate than is being experienced in the rest of Nebraska, as well as the Nation. The construction activity associated with the construction of the Calamus Dam and Reservoir and the Mirdan Canal System continues to bring jobs not only for those individuals involved directly in the construction, but also to others in the housing industry, retail sales business, and the services industry. This increased business and economic activity have fostered and supported public services such as street improvements and other public utility improvements. The City of Ord is just beginning the early phase of a downtown business revitalization program aimed at improving the physcial environment of the main business area of the city. Such community activities are a sure sign of economic growth and stability and your Committee, with its consistent support of our Project, has had a positive effect on our economic environment.

In conclusion, we are proud to give you, Mr. Chairman, and your Committee, this progress report. We understand your Committee will or have received a group of letters of support from the State of Nebraska's Administration and members of the Nebraska State Legislature to demonstrate the substantive support our Project continues to experience.

We again express our gratitude to you and your Committee for past support of the North Loup Project, and we respectfully request your support of the $30,497,000 Fiscal Year 1985 appropriation request.

STATEMENT OF THE CENTRAL PLATTE NATURAL RESOURCES DISTRICT

REQUEST:	$350,000.00 for Fiscal 1985
FUNDING PURPOSE:	Continuation of Feasibility Study by U.S. Bureau of Reclamation
PROJECT:	Prairie Bend Unit
LOCATION:	Dawson, Buffalo and Hall Counties in Nebraska
PROJECT PURPOSE:	Irrigation, stabilization of ground water levels, enhancement of water quality, small community and rural domestic water supplies, fish and wildlife habitat, flood control, public outdoor recreation and other purposes determined to be appropriate.

Mr. Chairman....Committee Members:

My name is Ron Bishop and I am General Manager for the Central Platte Natural Resources District. Our Central Platte Natural Resources District covers part or all of the ten counties in south central Nebraska that encompass the Platte River and its drainage areas along a 175 mile stretch extending from Gothenburg, Nebraska on the west to Columbus, Nebraska on the east.

A number of serious problems and critical needs relating to water exist within our Natural Resources District area. The economy of the area and the well-being of the people residing therein is dependent upon irrigated agriculture with the primary source of irrigation water being ground water.

The ground water levels, however, have been declining, causing an increase in pumping costs and an accompanying reduction in well production. The current ground water level declines of up to 25 feet are predicted to increase over the next 20 to 35 years to the point where thousands of irrigated acres will revert to dry-land without some kind of a supplemental supply project.

Additionally, each and every one of the over one hundred thousand residents within our Natural Resources District gets their drinking water supply from ground water but ground water quality problems have developed in the eastern half of our District to the point where a number of municipalities have had to abandon wells because the nitrate levels exceeded the U.S. Public Health Service's published maximum safe level for human consumption.

The area is also subject to infrequent but severe flooding. The single flood event of June 1967 caused over $30,000,000.00 worth of damage in the eastern half of our Natural Resources District alone.

In addition to those three major problems there are also some needs related to water within our area.

First of all, there is a need to maintain adequate water supplies for the waterfowl, fish and wildlife that currently utilize the area. The Big Bend area of the Platte River Basin in Nebraska plays host to five to seven million migratory waterfowl each and every year.

There is also a need within our area for water based recreation facilities for our residents and the other residents of central Nebraska.

Senator James Exon, Senator Edward Zorinsky, Congresswoman Virginia Smith and our Natural Resources District along with several other organizations, groups, associations and individuals have been working for a number of years toward getting a water resources project implemented in the area that would resolve those problems and address those needs.

The project that is needed and envisioned by the study sponsors, which are our Natural Resources District, the Central Nebraska Conservation Association and the Twin Valley Conservation Association, is not a single purpose irrigation project but a comprehensive multi-purpose water resources project.

We have good reason to believe that one project could:

(1) supply supplemental irrigation water
(2) stabilize the declining ground water levels
(3) enhance ground water quality
(4) protect and enhance the quality of the municipal, small communities and rural domestic water supplies
(5) provide fish and wildlife habitat
(6) provide flood control and reduce flood damage, and
(7) provide public outdoor recreation for the residents of south-central Nebraska.

In addition, we feel the project can be designed so that it recognizes and addresses the need for maintaining flows in the Platte River at the critical times for such instream and downstream uses as:

(1) ground water recharge for irrigation and rural domestic supplies
(2) induced recharge for municipal water supplies
(3) migratory waterfowl
(4) maintenance of sub-irrigated crops
(5) maintenance of wet meadows and wetlands
(6) water quality enhancement in surface and ground water, and
(7) fish and wildlife.

We have already made a considerable amount of up-front progress toward making the project a reality. Numerous studies, programs and data gathering efforts have been conducted that will aid in the preparation of the feasibility study.

(1) Water Quality Studies. The water quality studies and programs that have already been conducted will be beneficial to the planning of the water resources project as it relates to identification of water quality problem area, extent of the problem and effective methods of improving the ground water quality.

The local people, through our Central Platte Natural Resources District, have provided over $300,000.00 in cash toward those studies to date, in addition to the hundreds of man hours involved.

The funding by the State of Nebraska toward those studies has been approximately equal to the local contribution.

(2) Ground Water Model. Our Central Platte Natural Resources District and the Lower Loup Natural Resources District, which borders us on the north, under contract with the U.S. Geological Survey, has developed a detailed ground water flow model of the ground water basin lying between the Loups and Platte River from the Lincoln-Dawson County line eastward, which encompasses the proposed project area.

The approximate cost of this ground water flow model is $120,000.00 with the cost being shared on a approximate 50-50 basis between U.S. Geological Survey and the districts.

The ground water model is now available as a planning tool in evaluating the various alternatives available for the water resources project.

(3) Study of Engineering Alternatives. Our Natural Resources District contracted with the Denver, Colorado office of the engineering firm of CH2M Hill to look at various project alternatives available to the local people. One set of alternatives the firm evaluated was the physical or engineering alternatives available to address the water supply needs of the project area.

(4) Study of Financial Options. Another set of alternatives evaluated by CH2M Hill firm were the options available to the local people for financing or assisting in the financing of the water resources program.

(5) Study of Institutional Options. The third set of alternatives evaluated by CH2M Hill for the District were the options available to the local people for establishing an organization to develop, manage and operate a water resources program.

The studies by the private firm of the engineering alternatives along with the study of the financial and institutional options was done under contract to, and paid for by, the Natural Resources District at a cost of approximately $35,000.00.

(6) Hydrologic and Water Resources Investigation. The engineering firm of Henningson, Durham and Richardson from Omaha, Nebraska conducted an investigation of the water availability in the Platte River and the preliminary water needs of the proposed project area. The investigation and studies by Henningson, Durham and Richardson were done under contract to, and paid for by, local interests at a cost of approximately $23,000.00.

(7) U.S. Bureau of Reclamation's Appraisal Study. The Bureau made an evaluation of a supplemental water supply project for the eastern part of the proposed project area during their Upper Platte Basin Study.

The water budget studies indicate that ultimately some 35 to 40 percent of the arable land may be without a reliable water supply for irrigation purposes without a project.

Additional problems resulting in the predicted water table decline would include increased degradation of ground water quality and loss of wet meadow areas north of and adjacent to the Platte River.

All of the data from these plans, studies, programs, research and activities lead us to several conclusions:

(1) The water resources project is feasible from both an engineering and an economic viewpoint;

(2) There is sufficient unused flows in the Platte River that passes right through our Natural Resources District to provide the supplemental water needed;

(3) There is sufficient water available to recharge the ground water aquifer and stabilize the now declining ground water levels;

(4) That ground water recharge can also enhance ground water quality and protect the municipal, small community and rural domestic water supplies;

(5) There are good reservoir sites for the necessary storage available on Prairie Creek and on Wood River and its tributaries;

(6) Soils within the project area are highly suitable for irrigation with most of the land falling in the Soil Conservation Service's classification of "prime" agricultural land;

(7) Benefits from the project would more than cover the costs of building and operating the project;

(8) Large monetary, environmental and aesthetic benefits would occur from the development of fishing, wildlife and recreational aspects of the water and land use;

(9) Major flood control benefits could occur at little or no additional cost;

(10) Analyzing the project from an irrigation standpoint alone should have a favorable benefit:cost ratio of approximately 1.6 to 1;

(11) The Bureau of Reclamation indicated from their studies that a feasibility study of the project appears to be justified, both on the basis of need and on the basis of probable economic feasibility.

In summary, while we have major problems, there is a feasible solution. Feasible both from an engineering and an economic standpoint. The solution is a multi-purpose water resources project.

Our Natural Resources District Board, many other organizations from the area and people from our region are in support of, and committed to, this project.

We have the support of the State of Nebraska and we now have the necessary legislation. The U.S. Bureau of Reclamation was authorized and funded to initiate the necessary feasibility studies in mid 1983 and began the investigations in the fall of 1983.

We are confident that a multi-purpose water resources project will prove to be feasible and, when developed, will make a major contribution to the stability of Central Nebraska's economy and to the people of the region and their well being, as well as enhance the fish and wildlife resources.

To make such a program a reality we need your continued help and we need the continued help of the U.S. Bureau of Reclamation.

We would hope that you would all lend your strong individual and committee support to the Federal appropriation of at least $350,000.00 for Fiscal 1985 so that the Bureau of Reclamation can continue the feasibility study that we so earnestly need.

Thank you.

STATEMENT OF THE PAPIO NATURAL RESOURCES DISTRICT

The District's testimony requests continued support of funding for recreation development at dam site 20, the continuation of construction at dam site 18 and continuation of the re-evaluation study of the Papillion Creek and Tributaries Project. The testimony notes the continued active involvement of the District in the Papio Watershed Coordinating Committee which is working closely with the Corps of Engineers on the re-evaluation study.

The Papio Natural Resources District wishes to take this opportunity to request continued support for flood control activities related to the Papillion Creek and Tributaries flood control project. This project is of vital interest and concern to the District. The Papillion Creek and Tributaries project has been discussed many times with your Committee and we will not review historical items which you have in your files. We appreciate your previous support for the project and ask for your continued support of Federal involvement in this needed project.

The Administration's Fiscal Year 1985 proposed budget requests 2.3 million dollars for the Papillion Creek and Tributaries project. It is our understanding that these funds would be used for work on site 18, site 20 and the re-evaluation study which is currently underway. Accomplishments which would be anticipated include completion of construction and relocations at site 18. Approximately 1.7 million of the requested 2.3 million would be used for this. Funds would also be provided for revegetation work at both sites and to continue recreation facilities development at site 20. The current re-evaluation of flood control needs in the Papillion Creek basin would also be funded by the requested appropriation.

The Fiscal Year 1984 4.255 million dollar appropriation will be used to initiate recreation development at site 20, continue construction on site 18 and continue the restudy. The District appreciates your support for this project and would urge your continued support in the coming fiscal year so that the project can proceed.

The Papio Watershed Coordinating Committee met four times in 1983 and twice already in 1984. The Papio Watershed Coordinating Committee consists of representatives from local governmental agencies and interested organizations that are interested in the Papillion Creek Project. These include: the City of Omaha, City of Papillion, City of Ralston, Village of Bennington, Village of Washington, Washington County Board of Supervisors, Douglas County Board of Commissioners, Sarpy County Board of Commissioners, Papio Natural Resources District, Papio Valley Preservation Association and Papio Flood Protection Association. This Committee has been working with the Corps of Engineers as they proceed with their re-evaluation study of the flood control needs in the basin. The Corps is currently investigating alternative methods to reduce flood damages in the basin and preparing the Draft Environmental Impact Statement. We are hopeful that the efforts of the Corps will result in a plan that is both effective and implementable.

In summary, we would like to thank you for your past support for this project and urge your continued support for this project by funding the proposed budget request for Fiscal Year 1985 of 2.3 million dollars.

STATEMENT OF JACK ODGAARD, EXECUTIVE VICE PRESIDENT, NEBRASKA WATER RESOURCES ASSOCIATION

Dear Mr. Chairman:

On behalf of the officers, directors, and more than 5,000 members represented by the Nebraska Water Resources Association, I am writing to express our support for appropriations for the feasibility study on the Prairie Bend Unit reclamation project. We strongly urge your support and approval of the $350,000 included in the budget for this study in fiscal 1985.

The Prairie Bend Unit is an important project proposed for central Nebraska that would provide multiple water resources benefits including irrigation water delivery, supplemental water supplies, fish and wildlife, and outdoor recreation. The area that this project would serve has experienced widespread decline in ground water levels in the past few decades, and the Prairie Bend project would provide a dependable supply of water to remedy this situation and provide a greater management tool for water resources in the Platte River.

We strongly support the funding of the feasibility study for this important project, and urge the appropriations subcommittee and full committee to include the budgeted amount in the fiscal 1985 appropriations bill.

STATEMENT OF MARVIN J. RICKERT, WOOD RIVER, NEBR.

REQUEST:	$350,000.00 for Fiscal 1985
FUNDING PURPOSE:	Continuation of Feasibility Study by U.S. Bureau of Reclamation
PROJECT:	Prairie Bend Unit
LOCATION:	Dawson, Buffalo and Hall Counties in Nebraska
PROJECT PURPOSE:	Irrigation, stabilization of ground water levels, enhancement of water quality, small community and rural domestic water supplies, fish and wildlife habitat, flood control, public outdoor recreation and other purposes determined to be appropriate.

Mr. Chairman....Committee Members:

I, Marvin Rickert, being a farmer who has lived in the Prairie Bend water project area my whole life and having farmed for nearly 30 years in this area, realize the water declines and the need of a water project.

I am in Washington at my own expense, representing myself, my neighbors and community. I am asking for your continued support of the Prairie Bend feasibility study.

I want to thank you for your support in the past and for your future support in solving our water problems.

STATEMENT OF DOUG THOMPSON, WOOD RIVER, NEBR.

REQUEST:	$350,000.00 For Fiscal 1985
FUNDING PURPOSE:	Continuation of Feasibility Study by U.S. Bureau of Reclamation
PROJECT:	Prairie Bend Unit
LOCATION:	Dawson, Buffalo and Hall Counties in Nebraska
PROJECT PURPOSE:	Irrigation, stabilization of ground water levels, enhancement of water quality, small community and rural domestic water supplies, fish and wildlife habitat, flood control, public outdoor recreation and other purposes determined to be appropriate.

I sincerely ask the Committee to seriously consider the request for the approval of funds for continuation of the feasibility study of the Prairie Bend Project in Central Nebraska.

This project is essential to the irrigated economy of the Hall/Buffalo County area. The area included in the project has been experiencing significant ground water declines over the past twenty years and the projections of declines for the coming years are disastrous.

As a farmer who has lived and farmed in the western Hall County area my entire life (as did my father and grandfather), I have seen our wells that at one time would pump 1,000 gallons per minutes from 60 feet deep, decline to 500 gallons per minute at 200 feet deep. The replacement cost of these "deep" wells into the Ogallala aquifer is staggering (approximately $15,000.00 per well), not to mention the increased energy requirements which are approximately triple.

The Prairie Bend Project would not only surface irrigate a considerable portion of the area, but would provide us the much needed recharge of the underground aquifer for continued pump irrigation.

The area to be served by this project is not marginal land which would be developed for irrigation should the project be built; it is for practical purposes, all Class I prime farmland which has already been developed and irrigated over the last 40 years. This entire area of Nebraska operates on an irrigated economy, not only the farmers, but all businesses which are interrelated to them. Should the area be reverted to a dry land economy, the consequences would be disastrous.

Local support for the project is tremendous. The Central Nebraska Conservation Association (Prairie Bend) is operated strictly on donations from area farmers and businessmen, and has worked in conjunction with the Central Platte Natural Resources District on the project. In addition to the $240,000.00 committed to the project by Central Platte Natural Resources District, many in-kind services have been and will continue to be rendered by both groups.

The futures of my family and neighbors will hinge upon this project; and therefore, I hope you will give it your most serious consideration.

STATEMENT OF RODNEY K. GANGWISH, SHELTON, NEBR.

REQUEST:	$350,000.00 for Fiscal 1985
FUNDING PURPOSE:	Continuation of Feasibility Study by U.S. Bureau of Reclamation
PROJECT:	Prairie Bend Unit
LOCATION:	Dawson, Buffalo and Hall Counties in Nebraska
PROJECT PURPOSE:	Irrigation, stabilization of ground water levels, enhancement of water quality, small community and rural domestic water supplies, fish and wildlife habitat, flood control, public outdoor recreation and other purposes determined to be appropriate.

I would like to take this opportunity to submit written testimony in support of continuing the feasibility study for the Prairie Bend Unit by the Bureau of Reclamation.

I am a landowner and live two and a quarter miles south, and two and a quarter miles west of Shelton, Nebraska, within the boundaries of the proposed Prairie Bend Unit and am actively engaged in a farming partnership with my brother and my father.

I wish to convey to you a growing concern on the part of myself and my neighbors about the future of irrigated agriculture in our area.

We have ground water declines of 15 to 25 feet in the area with a significant decrease in well production. In most areas of the northern part of the Prairie Bend Unit, the top water Pleistocene formation has been depleted. Some of these shallow wells in the northern reaches of the area that were yielding 700 to 800 gallons per minute 10 years ago and now yield less than 150 gallons per minute. These shallow wells have been replaced with deep wells drilled into the Ogallala aquifer. The problem is that in some areas the Ogallala formation either does not exist or is not that productive and is yielding only 400 gallons per minute.

The land we farm that lies close to the Platte River (within two to four miles) also has no deep water Ogallala aquifer. The wells on this land have decreased up to 25 percent in output over the last 15 to 20 years.

This trend is alarming to me, and when we take into account the projections of ground water models and studies, such as the Platte River Basin Level B Study conducted by the Missouri River Basin Commission, our future for sustained irrigated agriculture is in serious jeopardy.

In addition, there are water quality problems. All of the residents and towns in the area get their drinking water from ground water. Several communities have problems because their nitrate content is above the Public Health Service's recommended maximum. I had to replace my well four years ago because it was yielding water with this same problem.

Flooding is another problem and, although not frequent, can cause a great deal of damage. There was in excess of $30,000,000.00 damage in the 1967 flood between Kearney and Columbus, much of which was in the proposed project area.

I feel the mood of the people in our rural area and in the surrounding communities of Grand Island and Kearney, have changed to the point that they are ready to face up to these challenges. We envision a project that would not only supplement irrigated water supply, stabilize ground water levels and enhance ground water quality, but would enhance municipal and rural domestic water supplies and provide fish and wildlife habitat, public outdoor recreation and flood control. One or more of these facets of the project would appeal to every citizen of our area in addition to stabilizing the economy of irrigated agriculture.

These are some of the reasons for the strong base of support the project has throughout the valley.

As you can see, we are not talking about a single purpose irrigation project, but a multi-purpose water resources project that would address all of these needs and more.

My neighbors and I support this type of project which will meet our needs for our future in irrigated agriculture. If we do not have some solutions to our challenges, we will be faced with turning irrigated acres back to dry land.

We in the Prairie Bend Unit urge you to support the continuation of the feasibility study.

STATEMENT OF RONALD G. HARGENS, CAIRO, NEBR.

REQUEST:	$350,000.00 for Fiscal 1985
FUNDING PURPOSE:	Continuation of Feasibility Study by U.S. Bureau of Reclamation
PROJECT:	Prairie Bend Unit
LOCATION:	Dawson, Buffalo and Hall Counties in Nebraska
PROJECT PURPOSE:	Irrigation, stabilization of ground water levels, enhancement of water quality, small community and rural domestic water supplies, fish and wildlife habitat, flood control, public outdoor recreation and other purposes determined to be appropriate.

I farm between Cairo and Wood River in the approximate center of the Prairie Bend area. I am 37 years old and have always lived in this area and have farmed for 19 years for myself.

In that time period I have seen the shallow wells go dry, being replaced by deep wells, tripling the horsepower requirements for irrigation water. On the land I farm there have been six irrigation wells abandoned for lack of production. Replacement wells were drilled at a greater depth to sustain irrigation.

According to the Bureau of Reclamation studies, and other studies done by private engineering firms, it is shown that in parts of the Prairie Bend area the aquifer life to sustain irrigation is 25 years or less.

In the same period the nitrate level of our house well has increased to 13 parts per million, three parts per million above the drinking water quality standard. Since we discovered this high level of nitrate in our drinking water we have been hauling bottled water for drinking.

To solve some of our problems, the Central Nebraska Conservation Association (Prairie Bend) was formed by a group of farmers and landowners from the Cairo, Wood River and Shelton area in western Hall and eastern Buffalo Counties in Nebraska. The purpose of the organization is to develop an irrigation and ground water recharge project to combat declining water tables and well production in much of the area.

To do this we filed a water right application in March of 1976 with the State of Nebraska to divert, store and use Platte River water. In October, 1976 we went to the Central Platte Natural Resources District, a local government subdivision, to ask them to assist us in securing a feasibility study. The Board of Directors unanimously decided to help us because of the existing and future water problems. Together we began seeking assistance from the Bureau of Reclamation to have them do an appraisal and feasibility study of the area.

The Upper Platte River Study has been completed by the federal government and the Prairie Bend area was part of the study. The study shows that there is a feasible project in the area.

Our Nebraska delegation secured authorization and funding approval in both the House and the Senate for the feasibility study in 1983 and the study is now underway. The Central Platte Natural Resources District has budgeted $240,000.00 to help fund the feasibility study and additional financial support is being offered from the Central Nebraska Conservation Association.

The project is being supported by several area groups and organizations: the Hall County Board of Supervisors, Buffalo County Board of Supervisors, Kearney Chamber of Commerce, Grand Island Chamber of Commerce, City of Grand Island, the towns of Cairo, Shelton and Wood River, Central Platte Natural Resources District, the Nebraska Natural Resources Commission, Nebraska Water Resources Association and several other groups and organizations.

An attitude survey poll was conducted by the Central Platte Natural Resources District, Central Nebraska Conservation Association, Whooping Crane Habitat Maintenance Trust and the Grand Island Chamber of Commerce. The poll was taken in the Central Platte River Valley and showed the people were very much in favor of a water storage project in the area. Of those who had an opinion, 85 percent were in favor.

With this amount of State and local support, and the existing and future water problems of water quality and supply, we feel it is of utmost importance that the feasibility study be continued in order to determine what can be done to solve the problems.

Therefore, I am submitting this testimony to request your support of funding in order to continue the feasibility study for the Prairie Bend Project by the Bureau of Reclamation.

Statement of Grand Island (Nebr.) Chamber of Commerce

REQUEST:	$350,000.00 for Fiscal 1985
FUNDING PURPOSE:	Continuation of Feasibility Study by U.S. Bureau of Reclamation
PROJECT:	Prairie Bend Unit
LOCATION:	Dawson, Buffalo and Hall Counties in Nebraska
PROJECT PURPOSE:	Irrigation, stabilization of ground water levels, enhancement of water quality, small community and rural domestic water supplies, fish and wildlife habitat, flood control, public outdoor recreation and other purposes determined to be appropriate.

It is respectfully requested that you and your Subcommittee act favorably on the 1985 fiscal year funds to continue the Bureau of Reclamation Feasibility Study of the Prairie Bend area of South Central Nebraska. Our local Central Platte Natural Resources District plans to continue its financial support of this joint Federal-local study.

During 1983, there was flooding along and near the Platte River and local precipitation was above normal. Even so, many wells of the area continued their downward trend and some wells still lacked adequate yields for irrigated crop production.

We feel that the results of this feasibility study can lead to the conserving and enhancing of water uses and in assisting in the well-being of our area.

Thank you for your consideration.

Garrison Diversion Unit, North Dakota—Opposition

STATEMENT OF CHARLENE DOUGHERTY, DIRECTOR OF LEGISLATION, NATIONAL AUDUBON SOCIETY

Senator Stennis. Next is Miss Charlene Dougherty. I am glad you are still here. You come around. You represent the National Audubon Society. We would like to give you more time, but the committee has allotted you 5 minutes so see what you can do with that. If you would please summarize your statement at this time.

Ms. Dougherty. Thank you very much.

On behalf of the half million members of the National Audubon Society we very much appreciate the opportunity to testify here today. I would appreciate if my statement can be included in the record.

[The statement follows:]

STATEMENT OF CHARLENE DOUGHERTY, DIRECTOR OF LEGISLATION, NATIONAL AUDUBON SOCIETY

Mr. Chairman and members of the subcommittee. On behalf of the 500,000 members of the National Audubon Society, I am here today to state our strong and continued opposition to the Garrison Diversion Project. We do have problems with some of the other water projects which are before you for consideration; you will be hearing separately from local citizens and some of our members on those projects. I am confining my remarks to Garrison to underscore our concerns about the project and our frustration that project proponents seem unwilling to discuss alternative projects or to seek a reasonable compromise.

Let me turn first to a discussion of alternatives to Garrison, and then to some of our specific criticisms about the project.

The National Audubon Society does not oppose water resources development in North Dakota. In fact, we have consistently urged the North Dakota delegation and the Interior Department to look at an alternative project or projects which address the present-day needs of the state and which can be built at substantially less environmental cost. It perplexes us that North Dakota is not aggressively pushing for an alternative to the authorized Garrison, since it is unclear if the authorized project will ever be completed.

The Bureau of Reclamation has said it is building Garrison in phases, beginning with an initial 85,000 acre "phase one." This phase will take ten years to complete, and at that time, the Bureau *hopes* -- and "hopes" is the word the Bureau itself uses -- that it will be able to complete the rest of the project. The reason for the uncertainty is the objection of the government and citizens of Canada to the construction of project features which may affect Canadian waters. In response to their objections, the U.S. has assured Canada that construction beyond the initial phase will not proceed until the U.S. obligations under the Boundary Waters Treaty have been met. These official assurances from the U.S. government imply that initial phase one may be all that is ever built.

Furthermore, it is uncertain that all of the 85,000 acre phase one can be built. Some 25,000 acres are located within the Hudson Bay drainage and would naturally drain into waters flowing into Canada. If return flows from this irrigation unit cannot be rerouted to the Missouri River drainage -- to the satisfaction of the Canadians -- then these 25,000 acres cannot be irrigated under phase one. This means that phase one of the project would be only 60,000 acres!

Last year, Audubon asked independent consultants, Wright Water Engineers, Inc. of Denver, Colorado, to do an economic analysis of phase one. In their report, Wright Water Engineers found that "phase I will involve construction of *all* reservoirs and pumping plants of the Garrison Diversion Unit and *67 percent* of the 258 miles of canals, but will result in irrigation of only *about 34 percent* of the original 250,000 acres of land. This amounts to spending *almost 60 percent* of the original cost to irrigate only *34 percent* of the land." (emphasis added) Wright Water further found that "based on benefit and cost estimates developed by the Bureau of Reclamation, the economic analysis described herein indicates that the *estimated benefits* expected to result from the 85,460-acre project *would not exceed estimated costs* evaluated at the 3.125 percent project-authorized discount rate. At the 3.125 discount rate the estimated benefit-cost ratio would be 0.92 and at the fiscal year 1983 7.625 percent discount rate, the benefit-cost ratio would be 0.43." (emphasis added) In short, whether using today's discount rate or that of 20 years ago, the *project's costs exceed its benefits*.

Further, at a time when we are paying farmers not to produce the very crops Garrison's irrigation intends them to grow, we are destroying land building Garrison which is in dryland cultivation. All the efforts on Garrison are to provide water for a relatively few farms to produce specialty crops whose attendant expenses of planting, central pivot sprinkling and harvesting are probably too great for the supposed beneficiaries, even if the subsidized irrigation water is made available.

We believe it is time to conduct a hard, objective review of Garrison to determine if alternatives can be developed which do not result in the major problems caused by the present project. As long as Garrison is being funded and construction is going forward, there is no real impetus for any review of alternatives to take place. Continuing construction forecloses many options for later redesign or modification of the project and, at the same time, it degrades and destroys important natural resources and threatens our neighbors to the north.

To help advance the discussion of alternatives to Garrison, the National Audubon Society asked Wright Water Engineers to determine if there was a readily implementable alternative to phase one of the Garrison project. We specified that such an alternative should (1) eliminate the possibility for biota transfer into the Hudson Bay drainage, (2) minimize the environmental impacts, (3) provide for a water resources project(s) for North Dakota and (4) utilize, if at all possible, project features already in place. We further stipulated that the alternative should not include the construction of Taayer and Lonetree Reservoirs, because we believe the areas to be affected by these two project features contain irreplaceable and truly unique wildlife habitat.

Wright Water Engineers, in a relatively short period of time, determined that there were at least several alternative water resources projects for North Dakota which would meet the criteria mentioned above. Wright Water proposed, for discussion purposes, a modification of phase one which would reduce wetlands losses by 88 percent, eliminate the possibility of biota transfers from the Missouri River Basin to the Hudson Bay Drainage, would cost $2,200 less per acre to develop than phase one, and would provide an equivalent number of irrigation acres as phase one. The proposal, however, still would impact the James River and several National Wildlife Refuges.

Wright Water further suggested that another 34,620 acres could be added to their proposal bringing the total acreage to 120,130. The cost/acre would be reduced to $5,169 (which is comparable to the per acre cost of the 250,000 acre plan). The total cost to develop the Wright Water Engineers' 120,000 acre plan would be $621 million, less than the Bureau's phase one total cost of $708 million.

The Wright Water proposal does not include construction of Lonetree Reservoir or Taayer Reservoir, while the Bureau's phase one would build both to a capacity to service the 250,000 acre project. Neither reservoir is needed to service phase one or the Wright Water alternative. Wright Water would build a canal (called the Skyeston Canal) instead of Lonetree Reservoir. Substitution of a canal has several advantages: it would result in substantial savings in future costs associated with the need to install and maintain fish screens to prevent fish and fish egg transfers; it would substantially lessen Canadian concerns about U.S. intentions to transfer waters for irrigation in the Hudson Bay watershed; and it would reduce impacts on a unique wetlands complex and a National Wildlife Refuge.

The proposal has yet another advantage over phase one. If Canada's objections to the project are overcome and, later on, a decision is made to build the 250,000 acre project, it will be cheaper to expand from the Wright Water project than from phase one.

I would like to submit two charts comparing the Bureau of Reclamation's phase one and the Wright Water proposal for inclusion in the record.

The Wright Water proposal is a clear indication that more cost-effective, less damaging modifications/alternatives to the present Garrison project exist. It is possible -- even likely -- that the Bureau of Reclamation can develop a superior recommendation to the Wright Water proposal. The National Audubon Society would strongly prefer an alternative which further minimizes the environmental impacts, particularly the impacts on the National Wildlife Refuge System and prairie wetlands.

Let me briefly mention a few of our specific concerns about the impacts of the present project to illustrate why we so strongly oppose it.

The impacts on wildlife and wildlife habitat are unacceptably high in our view. The authorized project will destroy over 60,000 acres of wetlands and damage another 13,000 acres. It will adversely impact 12 National Wildlife Refuges in the state; one National Wildlife Refuge will actually be drowned by the Lonetree Reservoir. The 85,000 acre initial phase is just as bad as the full project, in proportional terms. It will destroy 20,000 acres, damage another 34,000, and adversely affect 6 National Wildlife Refuges. Eight areas of outstanding wildlife habitat will be destroyed or damaged by the project including Lake Williams, Lonetree Valley and Kraft Slough.

To put this into perspective, North Dakota is one of the richest, most productive waterfowl areas in the country. It is on the Mississippi and Central Flyways for North American birds. The loss of wildlife cannot be confined to North Dakota's borders alone -- it ripples up and down the country and into Canada. For example, the International Joint Commission estimated that the change in wetland habitat as a result of the project will result in the average annual loss of nearly 178,000 ducks alone in the U.S. and another 40,000 ducks in Manitoba. As a measure of the severity of the wildlife losses, the Mississippi Flyway Council just several weeks ago passed a resolution in opposition to Garrison; the Central Flyway Council has a similar resolution pending.

We have carefully examined the new mitigation plan, which is directed toward the 85,000 acre initial project only. We have found the plan seriously flawed. The plan, if implemented -- and there is some question in our minds that the range of resources, human and financial, required for implementation will be available -- will not result in the diversity of species now present in North Dakota. In fact, less abundant wetland-dependent species will be traded off in favor of other, especially highland, species. The plan does not provide for mitigation for damages done to National Wildlife Refuges; it simply omits the National Wildlife Refuges because of "insufficient information." It does not deal with unique and irreplaceable areas, such as Kraft Slough. It does not mitigate for the channelization on the James River, nor the development at Devil's Lake. It is, in short, deficient.

One final point: Canada is now engaged in negotiations with the United States in an attempt to ensure that phase one construction or operation will not result in interbasin biota transfer or otherwise harm Canada's waters. It should be made clear that these negotiations concern phase one modifications and that Canada remains opposed to construction of the full project. And like us, they fear that phase one -- because of its poor economics as a stand-alone project, construction momentum, and sunk costs -- will force the completion of the whole project.

It is useful and good that discussions between Canada and the U.S. are taking place. We submit the agenda should be broadened to include a full-scale examination of alternate water projects. Alternatives -- which address Canada's concerns and our concerns -- already exist as I have described today. For reasons we don't understand, Garrison proponents seem determined to build the project as originally authorized and designed 20 years ago -- all of its problems, costs and uncertainties notwithstanding.

We urge this committee to take the following actions to ensure that a timely and thorough consideration of alternatives to the Garrison project takes place:

- approve no construction funds for Garrison until a review and consideration of alternatives to the project takes place. (This is necessary to ensure that options for adopting alternatives are not foreclosed by construction activities and that environmental damage is reduced.)

- direct the Bureau of Reclamation to undertake a study of an alternative water resources project for North Dakota which responds to the present day water resource needs in the state, substantially reduces environmental damages, and which will not harm Canada's waters.
- place an immediate moratorium on construction of Lonetree and Taayer Reservoirs. Neither feature is required if the full 250,000 acre project is not built. Both features destroy unique wildlife areas which cannot be adequately mitigated.

Thank you for considering our views.

GENERAL COMPARISON OF PHASE ONE AND WRIGHT WATER PROPOSAL

Proposal	Phase One	Wright Water
Total costs to build the project	$708 million	$538 million
Cost per acre to develop	$8,285	$6,299*
Total number of wetlands acres destroyed	22,500	7,300
Total number of acres to be irrigated	85,460***	85,510
Number of national wildlife refuges destroyed or adversely affected	6	5
Eliminate impacts on Canada	no	yes**

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*Wright Water suggested that another 34,620 acres could be added to their proposal bringing the total acreage to 120,130. The cost/acre would be reduced to $5,169 (which is comparable to the per acre cost of the 250,000 acre plan). The total cost to develop the 120,000 acre plan would be $620.8 million, still less than the Phase I total cost.

**Wright Water proposes to replace Lonetree Reservoir, a feature of Phase I, with the Skyeston Canal. This canal would address the Canadian concerns by scaling down the project, limiting it to the Missouri River drainage, and would minimize damage to the national wildlife refuge system, all at less cost.

***As mentioned above, since 25,000 acres are located within the Hudson Bay drainage, if return irrigation flows cannot be rerouted to the Missouri River drainage to protect the Canadians, those acres cannot be irrigated; yet the major infrastructure still would be built. The result would be an even less favorable cost/benefit ratio.

SPECIFIC COMPARISIONS OF PHASE ONE CONSTRUCTION WITH THE WRIGHT WATER PROPOSAL

	Phase One	Wright Water
Cost of expanding to 250,000 acre project		
a. fish screen construction	$146,000,000	$40,000,000
b. fish screen operations	$4,700,000/year @ 50 years = $235,000,000	$1,300,000/year @ 50 years = $65,000,000
Lonetree Reservoir	0	$47,800,000
Taayer Reservoir	0	$15,670,000
TOTALS	$381,000,000	$168,470,000

Wasted and unnecessary project features if no future expansion takes place:

	Phase One	Wright Water
Lonetree Reservoir	$47,800,000	0
Taayer Reservoir	$15,670,000	0
TOTALS	$63,470,000	0

BASIS OF OPPOSITION

Ms. DOUGHERTY. I would confine my remarks today to our opposition to the Garrison diversion project, the Bureau of Reclamation project in the State of North Dakota. I want to say at the outset that the National Audubon Society does not oppose better resources development in the State of North Dakota. We do oppose the present project as it is authorized and being developed. We very much commend you, Senator Exon, for the leadership that you have shown in the State of Nebraska and for the State in moving toward a compromise and alternative to the Norden Dam issue. It is this sort of leadership that we would like to see exercised in the case of the Garrison diversion project.

We have consistently urged the State of North Dakota and the Bureau of Reclamation to look at alternatives to the Garrison project. One of the reasons that we have pushed for alternatives to the project is that it is unclear that the present Garrison project will ever be built. Let me talk for a moment about the uncertainty of the present construction project scheduled for the Garrison project.

The Bureau of Reclamation says it is building Garrison in phases beginning with the 85,000-acre phase 1 and that after 10 years of construction of phase 1 it hopes—and "hopes" is the word the Bureau itself uses—that it will be able to build the rest of the 250,000-acre project. It is unclear and the Bureau itself is uncertain about whether they could ever complete the rest of the project. The main reason for this uncertainty is the objection of the Government of Canada to the possibility of a biota transfer from the Missouri River basin to the Hudson Bay watershed.

Because of this uncertainty, because of the poor economics of the phase 1 under construction, and because of the environmental objection of the Audubon Society to the Garrison project, what we would very much urge this committee to do is direct a study of alternatives to the present project to get this process underway.

To help advance the discussion——

Senator STENNIS. Excuse me just a minute, would you, please.

Ms. DOUGHERTY. Certainly.

Senator STENNIS. Ladies and gentlemen, Senator Johnston of Louisiana is now with us. He is a valuable member of this subcommittee, so I am going to retire and Senator Johnston will take over the rest of the hearing. I have enjoyed being with you and I am sorry I am going to miss you.

Senator Exon, you certainly added to the hearings.

Senator EXON. Thank you, Mr. Chairman.

Senator STENNIS. You livened things up around here and I am glad you came. Senator Exon is one of the most active members we have; he gets into a lot of things. He knows how to get out though before he gets in.

All right. I thank you very much.

Senator JOHNSTON. Thank you, Mr. Chairman.

Please continue, Miss Dougherty.

Ms. DOUGHERTY. Thank you.

STUDY OF ALTERNATIVES

As I was saying, the Audubon Society has strongly advocated an examination of alternative water projects for the State of North Dakota. To advance the discussion of alternative water projects we commissioned Wright Water Engineers, a water engineering firm in Denver, Colo., to look at alternatives to Garrison. We gave them pretty much a blank check, not in terms of money, but in terms of what they should look at. We said we wanted a project that would eliminate the possibility for biota transfer from one watershed to another and thus eliminate the possibility of harm to Canada.

We would further ask that the environmental impacts to the present project be minimized so that an alternative for water resources would provide for a project for the State of North Dakota and if at all possible utilize existing project features. Wright Water Engineers did find that with a very few modifications to the present phase 1 construction those criteria could all be met. Not only could they be met, but that the wetlands losses resulting from project construction could be reduced by 88 percent, the possibility of biota transfer would be eliminated, the cost to develop the irrigated acreage would be $2,000 per acre less than what the Bureau is now developing, and it would provide an equivalent number of irrigated acres.

We thought this was almost too good to be true until they broke some bad news to us that some of the wildlife refuges in the State would be harmed. Nevertheless, the project does have substantial advantages over what the Bureau of Reclamation is constructing at the present time. It has an additional advantage in that if Canada's objections to Garrison can be overcome in the future it would be cheaper to extend the project to its original size for the Wright Water alternative than it would for what the Bureau is now building.

I have attached to my statement a chart which compares the phase 1 construction that the Bureau is now proceeding with and the Wright Water discussion is the second page to the last page of my chart, and as you can see from looking at that the total costs of the Wright Water Engineering project is less, the total cost per acre is less and the overall environmental damage is reduced.

NEGOTIATIONS WITH CANADA

One final point. Canada is now engaged in negotiations with the United States to ensure that the current construction will not harm Canadian waters. I would like to make it clear that Canada does remain opposed to the Garrison project in its entirety, the whole 250,000-acre project, and, like us, they fear that construction of phase 1 because of its poor economics, the construction momentum in some costs will force the completion of the whole project regardless of the Canadian objections notwithstanding. We would urge the committee to review the uncertainty of the project and the harm that it is now doing in North Dakota and up and down.

By the way, Senator Johnston, let me address for a moment the Mississippi Flyway Council just several weeks ago adopted a resolution in opposition to the Garrison project because of their concerns about impacts on migratory birds on the Mississippi Flyway.

RECOMMENDED ACTIONS

We would urge the committee to take the following actions:

To approve no construction funding for Garrison until a full review and consideration of alternatives has taken place; and to direct the Bureau of Reclamation to immediately undertake a study of alternative water projects for the State of North Dakota that will meet certain minimum criteria. I believe, as I mentioned before, the example that Senator Exon cited, the O'Neill unit is an excellent one to follow and we would like to see that model used for the Garrison project.

Thank you very much.

Senator JOHNSTON. Thank you very much.

Senator Exon, do you have any questions?

Senator EXON. No. I listened with great interest to the testimony and I will read this over. As you may or may not know, Miss Dougherty, I voted for the Garrison project.

Ms. DOUGHERTY. Yes, I know.

Senator EXON. Because I am very much concerned about getting water where we need it and saving water. I am also very much interested in the environmental impact of all these things. I thank you for your suggestion. Since I know very little about the technical problems out there, I do not know whether the work that has been initiated for alternatives on the Norden would apply up there or not. But certainly we should continue to look beyond the horizon, if you will, the narrow horizons that the Bureau of Reclamation has had for a long, long time.

Now, the Bureau has done a good job in many areas. The problem is they looked at the future with their boots solidly planted in the cement of the past. If we are to reduce costs and still provide the irrigation water; if we are going to have the concern that we would all have for our environment which certainly the Audubon Society is the leader, then we all appreciate your input and advice and I thank you.

I also wanted to thank you, the Audubon Society, and other environmental groups for taking the position that you have. For far too many years I think we have had a situation of the developers on one side and the environmentalists on the other and I have always been convinced that people of goodwill can put their minds together and break out of their divisional position as the enviornmentalists have as opposed to the fact that the Bureau has not. Then there must be other ways that should at least be considered to continue and preserve our water and have the determination made the best it can be to the input from the local people that is so important.

Thank you very much for being here.

Ms. DOUGHERTY. Thank you very much.

Senator JOHNSTON. Thank you very much, Miss Dougherty. We appreciate your testimony.

Next we have Mr. Delman Bowers, the mayor of Waterloo, Iowa, in support of the Waterloo, Iowa, local flood control project.

Mayor Bowers, please introduce those with you.

WATERLOO LOCAL PROTECTION PROJECT

STATEMENT OF DELMAN BOWERS, MAYOR, WATERLOO, IOWA

ACCOMPANIED BY:

FENDON N. PETRIDES, CONSULTING ENGINEER TO WATERLOO, IOWA, AND THE COMMUNITY DEVELOPMENT BOARD

DALE C. MERCER, ADMINISTRATOR OF COMMUNITY DEVELOPMENT AND FLOOD CONTROL

Mayor BOWERS. Thank you, Mr. Chairman.

Mr. Petrides, consulting engineer to the city of Waterloo, and Dale Mercer, administrator of community development and flood control.

It is a pleasure to be here this morning.

Thank you, Mr. Chairman, and members of the committee.

We are grateful for an opportunity to appear before you.

Senator JOHNSTON. Your statement will be made part of the record.

[The statement follows:]

STATEMENT OF DELMAN BOWERS, MAYOR OF WATERLOO, IOWA

I am Delman Bowers, the Mayor of the City of Waterloo, Iowa. I reside at 1450 Ruth Street, Waterloo, Iowa.

I am accompanied today at this hearing by Dale C. Mercer, 1130 Ora Drive, Waterloo, Iowa, a member of the Board of Directors of the Water Resources Congress and Administrator of Waterloo's Community Development Board; and Fedon N. Petrides, 3507 Augusta Circle, Waterloo, Iowa, President of Brice, Petrides & Associates, Inc., consulting engineers, who have prepared statements for the record. Messrs. Mercer and Petrides have been closely involved in our flood control effort since its inception.

We are pleased to have the opportunity to appear before the committee to inform you of our activites, our needs in the area of flood control, and to answer any questions you might have regarding our Local Flood Control Project.

The City of Waterloo experienced two of the most serious floods in its history brought on by a rainfall deluge in June and July 1969, during which millions of dollars worth of property was damaged and the City was placed in serious economic jeopardy. In 1961, 1962, 1964, 1965, and again in 1968, the City of Waterloo was declared a major disaster area by Presidents Kennedy, Johnson, and Nixon. Millions of dollars in emergency Federal financing poured into the City during these years to supplement the local expenditures involved in the flood recovery effort. During these tragic experiences, the morale of our people was high and the cooperation of the Federal and State officials was outstanding. The events of the summer of 1969 brought home the necessity of accelerating Public Works and Capital Improvements Programs to be coordinated with the Local Flood Control Program.

In comprehensive discussions carried on with the U. S. Army Corps of Engineers and with other experts in the field of flood control, we concluded that the best tools available to the City of Waterloo in carrying out a flood control program to a successful conclusion, would be to combine it with an Urban Renewal Program, extensive water and sewer installations, a flood plain management program, an increased park and open spaces project, and revitalization and reconstruction of our center city on either side of the Cedar River.

The principal reason we advanced the two programs of flood abatement and urban renewal simultaneously is that from the point of cost effectiveness the development of both programs would permit a level of planning and execution that would be most helpful to the locality and would provide the best utilization of local and Federal funds. Coordination of these two unique programs prevented duplication of efforts.

The Waterloo Local Flood Protection Project was authorized by the Flood Control Act of 1965, Public Law 89-298, in accordance with the House Document No. 166, 89th Congress, first session.

The estimated cost of the project at the time of authorization was: Federal $14,000,000; City $3,750,000. Total project cost $18,650,000. The Corps of Engineers have revised their estimates upward periodically. January 13, 1969 the estimated Federal cost was $16,500,000; City $5,650,000 for a total project cost of $22,150,000. April 30, 1973 the Federal cost was estimated to be $21,400,000; City $6,850,000; total cost $28,250,000. In October 1979 the estimated cost was Federal $32,260,000; City $10,140,000; total cost $42,400,000.

With construction of the flood protection devices nearing completion $42,192,328 has been spent or obligated by the Corps of Engineers for construction. The City has spent over $11,555,000 on land acquisition and related relocation. Six flood producing vehicular bridges have been demolished and rebuilt at an elevation in excess of the 100-year flood requirements at a cost to the City of $7,267,073. Costs in addition to the above have made the City's share to date in excess of $20,500,000. As you can see, the City has more than fulfilled its obligation to share in the cost of the project.

Private development as part of the Local Flood Control and Redevelopment efforts continue. Already the 126 acre industrial park which is a part of the unique program is producing environmental gains seldom achieved through standard industrial programs of this magnitude. Altogether 1,000 acres of park land, most of it in the flood plain, have been retained for permanent public use.

The citizens of Waterloo join me in thanking you for this invitation to appear as "outside witnesses" in support of a request of continued construction appropriations for the Waterloo Local Flood Control Project. The City is continuing the acquisition of right of way to enable the Corps of Engineers to maintain their construction schedule.

One of the tributaries to the Cedar River is Blowers Creek. Major flooding in the Blowers Creek watershed has occurred in recent years (1968, 1979, and 1980). This flooding has caused significant property damage and hardship to the affected property owners. In the past, rescue operations during the flooding have been required to prevent potential loss of life.

With an investment of Federal and non-Federal funds totaling nearly $63 million for protection from flooding by the Cedar River and Black Hawk Creek, flooding through the "back door" by Blowers Creek cannot be permitted. The Corps of Engieers recognized the impact Blowers Creek flooding would have on the Local Flood Control Project and the community and has under construction a Flood Protection Plan for Blowers Creek. Mr. Chairman, the City of Waterloo supports the request of the U. S. Army Corps of Engineers budget request of $2.5 million for FY 1985.

With over 95 percent of the Waterloo project either completed or under contract, we are concerned that the Flood Protection Project remain on schedule and completed at the earliest date feasible. The need has been graphically demonstrated with the Cedar River, Black Hawk Creek, and Blowers Creek exceeding the flood stage several times in recent years. The awareness of potential flooding causes us to be grateful to Congress and the Corps of Engineers for the work that has been completed on schedule.

Mr. Chairman, it is imperative that we keep this project on schedule. We believe that our requests have been reasonable and timely. The project has received national attention because of the unique manner in which several Federal agencies, the State of Iowa, and the City of Waterloo have been able to coordinate their work. With this in mind and in the public interest, we respectfully request continued inclusion of the Waterloo Local Flood Control Project in the U. S. Army Corps of Engineers Capital Improvements Program.

STATEMENT OF DALE C. MERCER, ADMINISTRATOR OF COMMUNITY DEVELOPMENT, WATERLOO, IOWA

Mr. Chairman, my name is Dale C. Mercer and I reside at 1130 Ora Drive, Waterloo, Iowa. I am the Administrator of Comunity Development for the City of Waterloo. I am appearing today in support of Mayor Delman Bowers on behalf of the Waterloo Local Flood Control Project. I am a member of and on the Board of Directors of the Water Resources Congress. The Water Resources Congress, as in the past, continues to wholeheartedly endorse the Waterloo Flood Control Project.

We have been informed that the U. S. Army Corps of Engineers has a capability to gainfully use the appropriation request for Fiscal Year 1985 of $2,500,000 provided in the proposed Budget for continuation of construction of the Waterloo Project. The City has authorized the necessary local funds and has the administrative skills to collaborate with the Corps of Engineers in our flood control effort.

Mr. Chairman, with this in mind, my statement will serve to complete the record of the progress made to date in planning and executing a huge redevelopment and flood control program of significant benefit to the City of Waterloo. The Flood Control-Community Development Project being accomplished in Waterloo has been cited nationally for economic and social betterment in a metropolitan area while reducing local, State and Federal costs.

To date, the Waterloo Flood Control and Redevelopment Agency has made the following progress:

(i) In 1983 the City acquired 64 parcels of land at a cost of $482,100 as part of the flood protection project. Two businesses were relocated at a cost of $18,844. This increased the total right of way acquisition to 836 parcels costing $11,434,893. 513 families and 119 businesses have been relocated from the flood plain.

(ii) Arranged for and provided direct assistance to homeowners desiring to rehabilitate their property.

(iii) An Urban Development Action Grant was recently approved for redevelopment of a part of the Central Business District in the amount of $3,318,500. This has generated over $16,500,000 in private redevelopment. A portion of the private redevelopment was contingent on the Corps of Engineers construction of the flood wall and the City constructing a new bridge. The coordination of and joint funding by the Federal Government, City and private sector will be completed during 1984.

(iv) Construction of a $3.5 million HUD financed Water and Sewer Program coordinated with flood control and community development activities to improve life for all of our citizens has been completed. Another City funded sewer and drainage project as part of the Local Flood Control Project is underway at a cost of $110,000.

(v) Cost of private industrial development, resulting from the combined Flood Control-Community Development projects, either completed or for which commitments have been made, is valued at more than $146 million.

(vi) The City of Waterloo has been certified as eligible for Federal Flood Insurance.

(vii) The City and private sector have combined to form a Redevelopment Authority for the purpose of redeveloping the downtown. This redevelopment plan is being coordinated with the Flood Control Project through the downtown area.

(viii) Dry Run Creek area residents have been subjected to frequent flooding. The City completed one stage in the Flood Control Project for Dry Run Creek using City funds. A combined effort of the Corps of Engineers and the City provided additional flood control protection for Dry Run Creek residents resulting in cost savings to the Corps of Engineers and the City of Waterloo. The Iowa Department of Transportation is constructing another detention basin as part of the Dry Run Creek Flood Control Project in conjunction with construction of a new highway.

(ix) The U. S. Postal Service recently occupied a new $4 million postal facility adjacent to the flood wall. Coordination in design between the Corps of Engineers and the Postal Service made construction on the site possible and resulted in savings to the Federal Government.

(x) Assumed maintenance responsibilities of those stages of the Flood Control Project that have been completed.

We have appeared before this distinguished committee in previous years and outlined the goals and objectives which we had set for ourselves with the cooperation of local, State and Federal agencies. Many of these objectives have been attained.

Acquisition and project improvement programs have been correlated with flood control design and construction activities. The activities of each program are carefully staged in advance to assure funding availability, eliminate construction conflicts, and institute coordinated design and development results.

Mr. Chairman, I join those who have submitted statements and testimony in support of this project by asking that funds for the continuation of construction now underway be appropriated as part of the FY 1985 Budget. The Waterloo project, combining redevelopment with flood control, is unique in the Nation. Continued funding will assure proper timing, coordination, and could save the public appreciable expenditures in producing the desired beneficial effects. We sincerely appreciate all the assistance provided us. We believe it has been demonstrated the project has considerable merit.

In conclusion, I would remind the committee of the serious detrimental effects experienced by the citizens of this region because of frequent flooding resulting in extensive property damage and untold human suffering. We believe that a solution to the past history of economic and human loss can be corrected if additional construction funds for the Waterloo Local Flood Control Project are appropriated during this fiscal year. We are fully prepared to cooperate to achieve these goals. In so doing, we support the objectives of the President and Congress in the development of the FY 1985 Budget.

STATEMENT OF FEDON N. PETRIDES, MEMBER, WATER RESOURCES CONGRESS

My name is Fedon N. Petrides. I reside at 3507 Augusta Circle in Waterloo, Iowa. I am an engineer for the Waterloo Community Development Board and a member of the Water Resources Congress. I am appearing to answer any technical questions pertaining to the flood control, community development, inner-city transportation and other local projects that have been coordinated to provide a unique and widely supported project for Waterloo.

I am pleased to submit to your committee this prepared document in support of the statements of Mayor Bowers of Waterloo, Iowa, and Mr. Mercer, Community Development Administrator. The feeling of other groups and individuals that have indicated support for the Waterloo Flood Control Project are also reflected in the statements.

The City of Waterloo has contributed to the coordinated effort with the U. S. Army Corps of Engineers by funding Planning Studies for the Central Business District, Dry Run Creek Flood Control, Blowers Creek Flood Control and other drainage areas in the City. Community participation and input were received as part of these studies through meetings and surveys for the planning of the flood control works. The Federal Flood Control Project has been complemented by construction of a locally-funded multi-million dollar Storm Sewer Detention Flood Control Project on Dry Run Creek to control "behind the levee" flooding.

Several alternate flood control concepts were evaluated with input provided from community-wide and "interested citizen group" meetings. As a result of the Central Business District Planning Study, a very aesthetically desirable concept, acceptable to the community and the U. S. Army Corps of Engineers, was developed for critical areas of the flood control works. This concept blends the flood control with the other downtown improvements. The

Waterloo flood protection project has been selected twice as an award winner in the Chief of Engineers Design and Environmental Awards program. Awards were in the landscape architecture and engineering categories. Six old, low-arch bridges which were an obstruction to floods have been replaced. An additional new bridge is currently under construction. The design of City funded bridges and Flood Control devices are coordinated with the Corps of Engineers.

The Waterloo Flood Protection facility has been designed to join with the Flood Control Project recently completed for our neighboring community of Evansdale. Coordination of the Evansdale and Waterloo Flood Control Projects provided a continuity that reduced the Federal cost of the projects. The City of Waterloo supported this joint concept of flood control as a cost effective solution beneficial to all parties.

To conclude, Mr. Chairman, I join with other witnesses in support of this project by asking the appropriation of construction funds as soon as practical to continue construction of a project unique in concept, performance, and public acceptance. We are prepared now, as we have been in the past, to cooperate with the U. S. Army Corps of Engineers to accomplish this goal.

Your favorable consideration of the funding request will prevent loss and damage to property, danger to human life and other suffering that so many times has plagued our community during floods.

Thank you for the opportunity to present my statement to this committee.

Mayor BOWERS. As mayor of the city, I realize you have a busy schedule and we will be brief.

Waterloo has never asked you to do anything for us in our long ongoing partnership that we have not assumed our fair share of the cost and responsibility for providing some protection to our citizens. In our prepared statements, we point out the total Federal cost of constructing has been $42.2 million. The city's cost to date has been in excess of $20,500.

More recently, the Blowers Creek segment was added to the Waterloo flood control project as a postauthorization change. Included in its segment is a reconstruction of the bridge for U.S. Highway 20 and a bridge on the street which formerly carried a State highway. The estimated cost of that bridge is $1.7 million. Authorization from the Federal Government to construct these bridges at their expense is included in the water authorization bill, H.R. 3678.

Although we realize that the bill is being considered by other committees, we are hopeful that the legislation will be enacted during this session of Congress. We have appreciated your favorable consideration of our request in the prior years.

Again, we thank you for allowing us to appear before you today and would be pleased to answer any questions.

Senator JOHNSTON. Thank you very much, Mr. Bowers. I know the work that the city of Waterloo has been trying to do and we hope they can keep this project on a schedule.

Mr. BOWERS. Any questions?

Senator JOHNSTON. No further questions. Thank you very much.

Mr. BOWERS. Thank you, Senator.

GREAT LAKES BASIN PROJECTS

PREPARED STATEMENT

Senator JOHNSTON. Before calling our next witness, I want to make part of the hearing record the prepared statement of the Great Lakes Commission submitted by Mr. James Fish, executive director.

[The statement follows:]

STATEMENT OF JAMES FISH, EXECUTIVE DIRECTOR, GREAT LAKES COMMISSION

I am James Fish, Executive Director of the Great Lakes Commission. I am pleased to provide today's statement funding support for civil works programs of the U.S. Army Corps of Engineers in the Great Lakes Basin region. My statement includes general support of the budgeted civil works programs, identification of several projects which respective member states identified for special support, and projects of special interest to all states.

As an opening reference to my remarks I am providing you with a descriptive statement of the Great Lakes Commission.

The Great Lakes Commission

The Great Lakes Commission is an interstate compact commission comprised of gubernatorially appointed and legislatively mandated representatives of the eight Great Lakes states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin). The Commission was established in 1955 under state statutes and granted U.S. Congressional consent in 1968. The Commission is funded solely and determinately by these eight states; there is no federal funding. The Great Lakes Basin Compact, enabling legislation for the Commission directs it to: "promote the orderly, integrated, and comprehensive development, use, and conservation of the water resources of the Great Lakes basin." The Commission pursues this mandate via information sharing among member states, coordination of state positions on regional issues, and advocacy of those positions on which the states agree. The Commission addresses a wide range of economic development, transportation, environment and resource management issues facing the Great Lakes states. The Commission works closely with governors and legislators offices, municipal, state and federal agencies, interstate organizations, private sector firms and associations, universities and colleges and individual citizens.

The Great Lakes

The Great Lakes are the largest body of fresh surface water in the world, and are the second largest freshwater body in terms of volume in the world. They are the greatest environmental and economic asset which bless this continent. The Great Lakes Commission has not and will not stand by and permit environmental or economic destruction of this asset through misuse -- through enactment of discriminatory or negative legislation -- or through outright neglect on the part of the federal government. We believe in the wise use and development of this asset. As with any asset -- financial or resource -- water must be both protected and used in our regional and national economy if we are to continue to prosper as a country.

Great Lakes Projects

My statement on water project funding three years ago began with a report on the general feelings expressed by the Great Lakes water development community. At that time, they saw major projects and programs going forward in the Southwest and very little happening in the Great Lakes area. Little has changed from that time. While water managers and elected leaders in the Midwest would not deny development to any other area, there continues to be frustration over the minimum activity in the Midwest.

The one bright spot was action by Congress two years ago to eliminate the construction debt from the St. Lawrence Seaway. We in the Great Lakes region applauded this action and complimented the members of Congress who finally recognized that equity was not being served by singling out one waterway for different treatment than all the rest in the nation. There remains, however, the need to consider U.S. St. Lawrence Seaway tolls now colledted for operations and maintenance as the discussions on national waterway user charges continue. If national waterway user charges are adopted by the Congress, then due consideration ought to be given to recognizing the contribution that Great Lakes-St. Lawrence Seaway users have made to the U.S. Treasury over the past 22 years.

I have attached a listing of the U.S. Army Corps of Engineers' budget (General Investigations, Construction, and Operation and Maintenance) supported by the Great Lakes states. All projects identified in that listing have been supported by the respective Great Lakes states. I will not detail the list in this testimony, nor do I necessarily expect it to be included in the record of this hearing. It is submitted for use by the members of the Committee and committee staff as scheduled markups proceed. You may be assured that during the course of your hearing you will receive specific testimony from Great Lakes states. Already, I know that New York, Ohio and Illinois plan to submit testimony.

I have also included a listing of additional projects supported by the respective Great Lakes states. I call your attention to this supplemental list because it represents activities above and beyond the Administration's budget proposal. Each of these projects have significant interest for the respective states. They see considerable benefits in the initiation of these studies and construction projects and urge your support for them. These projects are also highlighted on the total listings attached.

There are several areas of the proposed budget that should be emphasized. First, operations and maintenance at approximately 76.8% of the Great Lakes area budget represents the largest category of outlay in the system. This expenditure is critical to retain the investment already made by federal, state and local governments and, more importantly, by private industry which builds the shoreside port facilities in all of the nation's port and waterway areas.

Diked disposal funding is a major requirement in the Great Lakes system at 11.1% of the budget. This assures that polluted materials will be adequately managed over extended periods of time. I call this to your attention because these sites are required in the Great Lakes and not required in many other areas of the nation. Because diked disposal areas are primarily constructed to maintain existing projects, they are also an operations and maintenance expenditure, bringing the overall O&M costs in the Great Lakes region to 87.9% of the total requested budget.

I call this to your attention because it differs significantly from the national program. Nationally, general investigations represent 4.3% of the proposed budget, construction represents 43.2%, and operations and maintenance represents 47.6%. I urge that you compare this to Great Lakes figures where general investigations are 4.7%, new construction is 5.5% and operations and maintenance are 87.9%.

This disparity to the Great Lakes system leave many in the region to intensify their concern about the national approach to water management, water policy and program coordination. Simply put, water personnel--navigation, flood control, shoreline managers and general water managers--find it hard to believe that our water problems are so much different than the other parts of the nation that these disparities in funding should occur.

Furthermore, there is increasing concern that if the Great Lakes system is not properly developed and maintained, that it may be subjected to increased challenges by diversion as defined in recent court cases. In other words, neglect of the system may create the opportunity for outside interests to seek removal of Great Lakes water to other areas.

In this testimony, I wanted to call your attention to several study efforts which have been urged upon the Congress and the Great Lakes Commission by all states.

1. Connecting Channels and Harbors Studies - Poe Lock Duplication

   The Connecting Channels and Harbors Study is ongoing in the Great Lakes and has been underway for over ten years. The Great Lakes Commission, the Great Lakes Task Force, Council of Great Lakes Governors, and many other groups have urged that this study be expedited. The Poe Lock, 1,250 ft. by 115 ft., is the only lock at the Sault Ste. Marie rapids capable of handling 1,000-foot super lake carriers. Previous testimony outlined the difficulties which could occur for the steel industry and the utility industry if this lock was ever inoperable due to a collision, sabotage, or simple mechanical failure. 1,000-foot vessels are now carrying approximately 40% of the lake-wise trade. To replicate that carrying capacity in the fleet of the smaller lake vessels would be simply impossible.

We have been informed that the Corps of Engineers is now separating the Soo Lock study from the Connecting Channels and Harbors studies as an interim report of the larger study. We urge the Committee to support this procedure to expedite processing of the Poe Lock section of the Connecting Channels and Harbors Study.

2. Operations and Maintenance - Dredging

The majority of commercially viable facilities in the Great Lakes have been constructed and have been in operation for a number of years. The critical matter is maintenance of existing facilities. For many years, the relative level of operation and maintenance and funding for Great Lakes commercial navigation facilities declined. We are pleased that funding has been increased for fiscal year 1985. We urge the Committee to approve these increases to expedite maintenance dredging in the Great Lakes. We do this for two reasons. First, it has been possible to defer much maintenance activity in the Great Lakes commercial ports and waterways over a number of years because of continuing high water levels. Water levels in the Great Lakes have constantly exceeded low water datum by 2, 3, 4 or more feet over the past 5-10 years. However, there is no guarantee that the forces of nature will continue to provide us with this luxury. If maintenance is not performed on a regular basis, we can expect an extraordinary requirement when water levels return to normal. Further, if such an extraordinary requirement did occur, there is doubt whether capable, efficient equipment would be available to meet the total dredging need in a difficult year especially if maintenance continues to be deferred.

The availability of equipment is another critical issue. Last year, the Great Lakes maritime community protested strongly the planned deactivation of the only two federal hopper dredges operating in the Great Lakes. The region's complaint centered on possible problems with emergency response and private contractor competitive bidding. Over sixty members of Congress joined in the effort to get the Corps of Engineers to change its plans. Now, the two dredges are tied up at Cleveland in accord with Congressional directives, supposedly on a standby basis. Since that time, one private company has designed, built, and has placed in service a new state-of-the-art hopper dredge. On March 16, 1984, the newly-built hydraulic hopper dredge, Northerly Island, operated by the North American Trailing Company was commissioned at Chicago. The hopper capacity of the new dredge, at 2160 cubic yards, only partially replaces the federal hopper capacity lost, but its overall efficiency could boast single-site productivity. However, if funding for maintenance dredging is not available in the Great Lakes, we have no assurance that this dredge will stay in the Lake system to be available for continuing maintenance or emergency dredging requirements.

3. Additional Locks - St. Lawrence Seaway Study. There is general support in the Great Lakes states for expediting the St. Lawrence Seaway Additional Locks Study. The continuing concern expressed by the State of New York that environmental studies be covered in any funding are universally supported. I bring this Study to your attention because historically there has been some confusion regarding this project in Congress, due to a lack of action on the part of Great Lakes representatives. In addition, it should be noted that Canada is pursuing parallel studies.

Mr. Chairman, you have our recommendations. If we can provide additional information, do not hesitate to ask. We are prepared to respond.

GREAT LAKES BASIN CIVIL WORKS PROGRAM FY 1985

STATE RECOMMENDED ADDITIONS TO ADMINISTRATION BUDGET

ILLINOIS

	FY 85 BUDGET REQUEST
Continuing Studies	
Section 107 of P.L. 86-645 (Illinois Shore of Lake Michigan)	$170,000
Surveys	
Illinois Shoreline Erosion (Lake Michigan (BE)	90,000
North Branch Chicago River (CP&E)	500,000
Increased Diversion Demonstration Project - Lake Michigan	218,000
Operations and Maintenance	
Lake Michigan Diversion Measurement & Accounting	200,000

Comments

Increased Diversion Demonstration Project - Several years ago Congress authorized and funded a study of the effects of increased diversion of Lake Michigan waters through the Chicago canals to the Illinois waterway system. All major work has been completed and was made available to the International Joint Commission for their study of Great Lakes diversions and consumptive uses. The purpose of this appropriation is to complete the study and publich results.

Lake Michigan Diversion Measurement & Accounting - Measurement and accounting for the existing Lake Michigan Diversion is the primary responsibility of the State of Illinois, subject to review by the Corps of Engineers. The State of Illinois seeks to have this appropriation made to the Corps so they may assume full responsibility in measurement of existing diversions.

MICHIGAN

Michigan expressed concern over the lack of maintenance for existing recreational harbors. The state foresees significant negative economic impact if these harbors are permitted to deteriorate by simple neglect. The state has identified over 11,000 direct jobs which could be affected if these harbors become unusable.

While no changes are currently recommended, the state plans a later submission to the subcommittee and its own Congressional Delegation.

OHIO

Ohio believes all its Great Lakes Basin projects should be increased to reflect Corps of Engineers capability. These increases are reflected in the attached listing of all Great Lakes projects.

Geneva-on-the-Lake

All planning studies have been completed for this project. The State believes construction activities should commence. The State is prepared to fulfill its responsibilities with regard to the project. Current estimates indicate the State share for the overal project will exceed 50%.

Maumee Bay State Park

This project is ready for the Advanced Engineering and Design phase. The State commitments are in place.

FY 1985 GREAT LAKES BASIN CIVIL WORKS BUDGET REQUESTS AND FY 1984 BUDGET REQUESTS AND APPROPRIATIONS

(Figures in parenthesis indicate number of projects in each category)

- Regional and State Projects -

	FY 1984 Budget Request	FY 1984 Appropriations	FY 1985 Budget Request	FY 1985 GLC Recommendations
Total for Great Lakes	$ 80,993,000 (108)	$ 82,678,000 (117)	$ 102,512,000 (92)	$ 107,085,000 (96)*
Construction, Planning & Study Projects	8,703,000 (18)	9,988,000 (25)	12,320,000 (17)	13,418,000 (19)*
Construction	4,450,000 (4)	4,100,000 (4)	7,960,000 (4)	7,960,000 (4)
Advance Eng. & Design	255,000 (2)	705,000 (4)	196,000 (2)	496,000 (2)
General investigations	3,998,000 (12)	5,183,000 (17)	4,164,000 (11)	5,062,000 (13)*
Operation & Maintenance	53,991,000 (76)	54,391,000 (78)	78,313,000 (63)	81,788,000 (65)*
Diked Disposal Areas	18,299,000 (14)	18,299,000 (14)	11,879,000 (12)	11,879,000 (12)
Construction				
Navigation Projects	110,000 (1)	110,000 (1)	2,250,000 (1)	3,250,000 (2)*
Irondequoit Bay, N.Y.	110,000	110,000	2,250,000	2,250,000
Geneva-on-the-Lake, Ohio	-0-	-0-	-0-	1,000,000 *
Flood Control Projects	3,100,000 (2)	3,000,000 (2)	4,550,000 (2)	4,550,000 (2)
Saginaw River, Mich.	- 0 -	500,000	- 0 -	- 0 -
Ellicott Creek, N.Y.	600,000	- 0 -	2,700,000	2,700,000
Point Place (Toledo), Ohio	2,500,000	2,500,000	1,850,000	1,850,000
Beach Erosion Projects	1,240,000 (1)	990,000 (1)	1,160,000 (1)	1,160,000 (1)
Presque Isle (Erie), Pa.	1,240,000	990,000	1,160,000	1,160,000
Planning (Advance Engineering & Design)				
Navigation Projects	85,000 (1)	535,000 (3)	95,000 (1)	95,000 (1)
Monroe, Mich.	- 0 -	400,000	- 0 -	- 0 -
Geneva-on-the-Lake, Ohio	- 0 -	50,000	completed	- 0 -
Green Bay, Wis.	85,000	85,000	95,000	95,000
Flood Control Projects	170,000 (1)	170,000 (1)	101,000 (1)	101,000 (1)
Reno Beach area, Ohio	170,000	170,000	101,000	101,000
Beach Erosion Projects	- 0 - (0)	- 0 - (0)	- 0 - (0)	300,000 (1)
Maumee Bay State Park	- 0 -	- 0 -	- 0 -	300,000
General Investigations				
Navigation Surveys	1,910,000 (4)	1,910,000 (4)	1,959,000 (4)	1,959,000 (4)
Connecting Channels	1,250,000	1,250,000	1,039,000	1,039,000
Seaway locks improvement	200,000	200,000	470,000	470,000
Buffalo harbor, N.Y.	335,000	335,000	120,000	120,000
Cleveland harbor, Ohio	125,000	125,000	completed	- 0 -
Fox River dam, Wis. (review)	- 0 -	- 0 -	330,000	330,000
Flood Damage Prevention Surveys	2,088,000 (8)	2,538,000 (10)	2,205,000 (6)	2,705,000 (7)*
Great Lakes Metro areas	380,000	380,000	530,000	530,000
South end of Lake Michigan	140,000	140,000	230,000	230,000
North Branch of Chicago R., Ill.	- 0 -	190,000	- 0 -	- 0 -
Chicago Underflow Plan, Ill.	865,000	865,000	810,000	810,000
Fort Wayne Metro area, Ind.	80,000	80,000	225,000	225,000
Little Calumet River basin, Ind.	35,000	35,000	completed	- 0 -
Little Calumet R., Ind. (CP&E)	- 0 -	300,000	- 0 -	- 0 -
Saginaw River basin, Mich.	260,000	260,000	225,000	225,000
Oswego River basin, N.Y.	175,000	175,000	completed	- 0 -
Cuyahoga River basin, Ohio	153,000	153,000	185,000	185,000
North Branch Chicago River (CP&E)	- 0 -	- 0 -	- 0 -	500,000 *
Beach Erosion Projects	- 0 - (0)	500,000 (1)	- 0 - (0)	- 0 - (0)
Presque Isle (Erie), Pa.	- 0 -	500,000	- 0 -	- 0 -
Special	- 0 - (0)	235,000 (2)	- 0 - (0)	308,000 (2)*
Illinois shore of Lake Michigan	- 0 -	85,000	- 0 -	90,000
Indiana shoreline erosion	- 0 -	150,000	- 0 -	- 0 -
Increased Diversion Demonstration Project - Lake Michigan	- 0 -	- 0 -	- 0 -	218,000

	FY 1984 Budget Request	FY 1984 Appropriations	FY 1985 Budget Request	FY 1983 GLC Recommendations	
Operation & Maintenance	53,991,000 (76)	54,391,000 (78)	78,313,000 (63)	81,788,000 (65)	
Connecting waterways: St. Marys, St. Clair & Detroit rivers, Lake St. Clair & Str. of Mackinac	17,657,000 (4)	17,657,000 (4)	22,209,000	22,209,000	
Illinois	1,039,000 (2)	1,189,000 (3)	3,073,000	3,273,000	*
Indiana	21,000 (1)	21,000 (1)	- 0 -	0 -	
Michigan	9,700,000 (40)	9,950,000 (41)	16,546,000	16,546,000	
Minnesota	21,000 (1)	21,000 (1)	578,000	578,000	
Minnesota-Wisconsin	2,171,000 (1)	2,171,000 (1)	4,354,000	4,354,000	
New York	4,460,000 (4)	4,460,000 (4)	5,101,000	5,101,000	
Ohio	13,460,000 (8)	13,460,000 (8)	20,[illegible]1,000	23,626,000	*
Pennsylvania	635,000 (1)	635,000 (1)	- 0 -	- 0 -	
Wisconsin	4,827,000 (14)	4,827,000 (14)	6,101,000	6,101,000	
Diked Disposal Areas	18,299,000 (14)	18,299,000 (14)	11,879,000 (12)	11,879,000 (12)	
Calumet River & harbor, Ill.	4,000,000	4,000,000	- 0 -	- 0 -	
Chicago River, Ill.	770,000	770,000	110,000	110,000	
Chicago harbor, Ill.	700,000	700,000	- 0 -	- 0 -	
Waukegan harbor, Ill.	374,000	374,000	512,000	512,000	
Keweenaw Waterway, Mich.	- 0 -	- 0 -	76,000	76,000	
Indiana Harbor, Ind.	400,000	400,000	6,660,000	6,660,000	
Detroit River, Mich.	829,000	829,000	completed	- 0 -	
Menominee harbor, Mich.	84,000	84,000	115,000	115,000	
Monroe harbor, Mich.	9,000,000	9,000,000	2,120,000	2,120,000	
Rouge River, Mich.	334,000	334,000	completed	- 0 -	
Saginaw River, Mich.	238,000	238,000	1,078,000	1,078,000	
St. Joseph harbor, Mich.	82,000	82,000	206,000	206,000	
Ashtabula harbor, Mich.	1,400,000	1,400,000	80,000	80,000	
Green Bay harbor, Wis.	81,000	81,000	672,000	672,000	
Sheboygan harbor, Wis.	- 0 -	- 0 -	120,000	120,000	
Sturgeon Bay, Wis.	7,000	7,000	130,000	130,000	

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* Highlights recommendations for changes in the President's budget for FY 1985.

FY 1985 GREAT LAKES BASIN CIVIL WORKS BUDGET REQUESTS
AND FY 1984 BUDGET REQUESTS AND APPROPRIATIONS

(Figures in parenthesis indicate number of projects in each category)

OPERATION AND MAINTENANCE ACTIVITIES

	FY 1984 Budget Request	FY 1984 Appropriation	FY 1985 Budget Request	FY 1985 GLC Recommendations	
Total Operation & Maintenance	$ 53,706,000 (76)	$54,391,000 (78)	$ 78,313,000 (63)	$ 81,788,000 (65)*	
Regional Waterways	17,657,000 (4)	17,657,000 (4)	22,209,000 (4)	22,209,000 (4)	
Detroit River	5,286,000	5,286,000	8,620,000	8,620,000	
Lake St. Clair	1,415,000	1,415,000	387,000	387,000	
St. Clair River	1,948,000	1,948,000	2,155,000	2,155,000	
St. Marys River	9,008,000	9,008,000	11,047,000	11,047,000	
Illinois	1,039,000 (2)	1,189,000 (3)	3,073,000 (4)	3,273,000	*
Calumet River and harbor	- 0 -	- 0 -	1,470,000	1,470,000	
Chicago harbor	- 0 -	- 0 -	686,000	686,000	
Chicago River	380,000	380,000	396,000	396,000	
Chicago River, debris removal	- 0 -	150,000	- 0 -	- 0 -	
Waukegan harbor	659,000	659,000	521,000	521,000	
Lake Michigan Diversion (Measurement & Accounting)	- 0 -	- 0 -	- 0 -	200,000	*
Indiana	21,000 (1)	21,000 (1)	- 0 - (0)	- 0 - (0)	
Michigan City harbor	21,000	21,000	- 0 -	- 0 -	
Michigan	9,700,000 (40)	9,950,000 (41)	16,546,000 (30)	16,546,000 (30)	
Alpena	- 0 -	- 0 -	160,000	160,000	
Arcadia harbor	35,000	35,000	- 0 -	- 0 -	
Au Sable harbor	19,000	19,000	13,000	13,000	
Big Bay harbor	17,000	17,000	- 0 -	- 0 -	
Black River harbor	17,000	17,000	183,000	183,000	
Black River (Port Huron)	31,000	31,000	- 0 -	- 0 -	
Charlevoix harbor	24,000	24,000	13,000	13,000	
Cheboygan harbor	114,000	114,000	- 0 -	- 0 -	
Clinton River harbor	26,000	26,000	- 0 -	- 0 -	
Eagle harbor	17,000	17,000	- 0 -	- 0 -	

FY 1985 GREAT LAKES BASIN CIVIL WORKS BUDGET REQUESTS AND FY 1984 BUDGET REQUESTS AND APPROPRIATIONS

(Figures in parenthesis indicate number of projects in each category)

OPERATION AND MAINTENANCE ACTIVITIES

	FY 1984 Budget Request	FY 1984 Appropriation	FY 1985 Budget Request	FY 1985 GLC Recommendations
Total Operation & Maintenance	$ 53,706,000 (76)	$54,391,000 (78)	$ 78,313,000 (63)	$ 81,788,000 (65)*
Frankfort harbor	222,000	222,000	263,000	263,000
Grand Haven & Grand River	272,000	272,000	720,000	720,000
Grand Traverse Bay harbor	276,000	276,000	8,000	8,000
Hammond Bay harbor	39,000	39,000	- 0 -	- 0 -
Harbor Beach harbor	- 0 -	- 0 -	16,000	16,000
Harrisville harbor	34,000	34,000	- 0 -	- 0 -
Holland harbor	2,371,000	2,371,000	510,000	510,000
Inland Route	84,000	84,000	35,000	35,000
Kawkawlin River	- 0 -	250,000	- 0 -	- 0 -
Keweenaw Waterway	52,000	52,000	2,203,000	2,203,000
Leland harbor	20,000	20,000	141,000	141,000
Lexington harbor	22,000	22,000	269,000	269,000
Little Lake harbor	46,000	46,000	- 0 -	- 0 -
Ludington harbor	464,000	464,000	1,155,000	1,155,000
Manistee harbor	290,000	290,000	23,000	23,000
Manistique harbor	22,000	22,000	23,000	23,000
Menominee harbor	568,000	568,000	- 0 -	- 0 -
Monroe harbor	1,154,000	1,154,000	1,033,000	1,033,000
Muskegon harbor	556,000	556,000	189,000	189,000
New Buffalo harbor	67,000	67,000	24,000	24,000
Ontonagon harbor	42,000	42,000	136,000	136,000
Pentwater harbor	38,000	38,000	184,000	184,000
Point Lookout harbor	32,000	32,000	1,801,000	1,801,000
Port Austin harbor	21,000	21,000	- 0 -	- 0 -
Port Sanilac harbor	233,000	233,000	199,000	199,000
Portage Lake harbor	- 0 -	- 0 -	152,000	152,000
Presque Isle harbor	237,000	237,000	- 0 -	- 0 -
Rouge River	868,000	868,000	1,825,000	1,825,000
Saginaw River	143,000	143,000	3,608,000	3,608,000
Saugatuck harbor	38,000	38,000	189,000	189,000
Sebewaing River	20,000	20,000	24,000	24,000
South Haven	279,000	279,000	- 0 -	- 0 -
St. Joseph harbor	846,000	846,000	919,000	919,000
White Lake harbor	44,000	44,000	528,000	528,000
Minnesota	21,000 (1)	21,000 (1)	578,000 (1)	578,000 (1)
Grand Marais harbor	21,000	21,000	578,000	578,000
Minnesota-Wisconsin	2,171,000 (1)	2,171,000 (1)	4,354,000 (1)	4,354,000 (1)
Duluth-Superior harbor	2,171,000	2,171,000	4,354,000	4,354,000
New York	4,460,000 (4)	4,460,000 (4)	5,101,000 (6)	5,101,000 (6)
Black Rock Channel	945,000	945,000	1,463,000	1,463,000
Buffalo harbor	2,220,000	2,220,000	2,132,000	2,132,000
Dunkirk harbor	- 0 -	- 0 -	251,000	251,000
Ogdensburg harbor	- 0 -	- 0 -	10,000	10,000
Oswego harbor	390,000	390,000	452,000	452,000
Rochester harbor	905,000	905,000	793,000	793,000
Ohio	13,460,000 (8)	13,460,000 (8)	20,351,000 (8)	23,626,000 (9)*
Ashtabula harbor	920,000	920,000	99,000	399,000 *
Cleveland harbor	4,740,000	4,740,000	9,692,000	11,692,000 *
Conneaut harbor	665,000	665,000	989.000	989,000
Fairport harbor	655,000	655,000	1,043,000	1,043,000
Huron harbor	915,000	915,000	1,017,000	1,517,000 *
Lorain harbor	1,240,000	1,240,000	1,551,000	1,551,000
Sandusky harbor	745,000	745,000	1,191,000	1,191,000
Toledo harbor	3,580,000	3,580,000	4,769,000	4,769,000
Vermillion	- 0 -	- 0 -	- 0 -	475,000 *
Pennsylvania	635,000 (1)	635,000 (1)	- 0 - (0)	- 0 - (0)
Erie	635,000	635,000	- 0 -	- 0 -
Wisconsin	4,827,000 (14)	4,827,000 (14)	6,101,000 (9)	6,101,000 (9)
Ashland harbor	423,000	423,000	- 0 -	- 0 -
Fox River	826,000	826,000	928,000	928,000
Green Bay harbor	1,160,000	1,160,000	1,948,000	1,948,000
Kenosha harbor	173,000	173,000	- 0 -	- 0 -

FY 1985 GREAT LAKES BASIN CIVIL WORKS BUDGET REQUESTS
AND FY 1984 BUDGET REQUESTS AND APPROPRIATIONS

(Figures in parenthesis indicate number of projects in each category)

OPERATION AND MAINTENANCE ACTIVITIES

	FY 1984 Budget Request	FY 1984 Appropriation	FY 1985 Budget Request	FY 1985 GLC Recommendations
Total Operation & Maintenance	$ 53,706,000 (76)	$54,391,000 (78)	$ 78,313,000 (63)	$ 81,788,000 (65)*
Kewaunee harbor	519,000	519,000	117,000	117,000
Manitowoc harbor	419,000	419,000	216,000	216,000
Milwaukee harbor	553,000	553,000	1,574,000	1,574,000
Oconto harbor	21,000	21,000	- 0 -	- 0 -
Port Washington harbor	378,000	378,000	- 0 -	- 0 -
Port Wing harbor	19,000	19,000	- 0 -	- 0 -
Racine harbor	71,000	71,000	41,000	41,000
Sheboygan harbor	181,000	181,000	1,059,000	1,059,000
Sturgeon Bay harbor/canal	57,000	57,000	29,000	29,000
Two Rivers harbor	27,000	27,000	189,000	189,000

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* Highlights recommendations for changes in the President's budget for FY 1985.

Prepared by: Great Lakes Commission
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MISSOURI AND KANSAS WATER PROJECTS

Senator JOHNSTON. Next, is Mr. McPherson and his group.

Mr. McPherson, we are very glad to welcome you to the committee. Would you please proceed.

Mr. MCPHERSON. Thank you, Mr. Chairman.

We have statements that we have left with the committee staff that we would like to have entered into the record.

Senator JOHNSTON. Those statements will be entered into the record at the appropriate place.

Mr. MCPHERSON. There are some people who would like to make some very brief statements. Also, some of our people didn't make it in today and we would like permission to have their statements entered at a later date.

Senator JOHNSTON. We will enter those statements later.

MISSOURI RIVER NAVIGATION AND BANK STABILIZATION PROJECTS

STATEMENT OF RANDY MOODY, VICE PRESIDENT, MISSOURI RIVER BASIN ASSOCIATION

Mr. MCPHERSON. First, I would like to introduce Mr. Randy Moody who is the vice president of our association. He is also cochairman of our Missouri River Shippers and Operators Committee and is manager of the Missouri River Marketing for Huffman Towing Co.

Mr. MOODY. Thank you, Jim.

Thank you, Mr. Chairman, for giving the Missouri River Shippers and Operators Committee an opportunity to present its views on the Army Corps of Engineers budget request for the Missouri River Division for fiscal year 1985.

I do have a statement which we have submitted for the record, but I would like to say that we do support the Missouri River Division's request of $109.3 million for fiscal year 1985 including the $9.3 million allocated by the Corps to be used to operate and maintain the 735-mile navigation and bank stabilization project from Sioux City to the mouth of the Missouri above St. Louis. No construction funds are requested for the navigation channel, which in 1983 was used by several barge lines, including my own, and many shippers to move nearly 3 million tons of commodities up and down the river. There are no locks and dams on the navigable portion of the river, so maintenance costs are traditionally minimal.

LACK OF PROJECT DEPTHS

There is one problem, however, I would like to point out to the subcommittee that had constantly plagued those of us who operate boats and barges on the Missouri. It is the lack of a true 9-foot channel. Because we cannot load our barges consistently to a full 9-foot depth, we operate at a disadvantage on the Missouri in comparison to all the other inland waterways.

Almost every inland waterway except the Missouri River can handle barges loaded to a 9-foot draft. In terms of tonnage, this means that barges loaded to 1,400 tons on other rivers can be loaded to only 1,200 tons on the Missouri River. We, therefore, are penalized because this results in less revenue from Missouri River barge lines and shippers. Also, the Grange shippers on the Missouri River are sometimes doubly penalized because it has been the policy in some instances that the gulf ports, including New Orleans, to discount or pay less per bushel for barges coming from the Missouri River because they have a light load. We don't think this is fair. We have talked to the Corps of Engineers over a period of several years about a solution to this. The Corps has been unresponsive.

A careful study of the Corps' channel reports indicate that the depth in most areas in the Missouri River is in the 11- to 12-foot range which certainly is plenty deep for barges loaded to 9 feet, but there are a few areas each year that are too shallow and, of course, that represents the limit as to how deep we can load. We would like to see the Corps of Engineers within their current budget maintenance authority develop a dredging program for those few spots and make the Missouri River comparable to the other inland waterways. What we ask you to do, please, in our report that accompanies your bill is to direct the Corps of Engineers to at least attempt this as a part of their operation and maintenance program. Again, we are not asking for additional money. We think the Corps if they would attempt this it would provide some help for us and make our waterway comparable to those other inland waterways and give an economic parity to our shippers and operators on the Missouri River.

Senator Johnston. Do you know what the cost would be to the Corps?

Mr. Moody. I don't know exactly what it would be. We don't think it would cost more than $1.5 million to have a consistent dredging program on the Missouri River over a period of the 8-month navigation season on the Missouri River. This is not from the Corps, but this is from people such as our port captain and some of the other people who work on the river and that would be a rough estimate as to a possible cost. We think this can be part of the Corps' operation and maintenance budget.

Thank you.

[The statement follows:]

STATEMENT OF RANDY MOODY, VICE CHAIRMAN, MISSOURI RIVER SHIPPERS AND OPERATORS COMMITTEE

Mr. Chairman, members of the subcommittee, thank you for giving the Missouri River Shippers and Operators Committee an opportunity to present its views on the U.S. Army Corps of Engineers budget request for the Missouri River Division for FY 1985.

We support the Missouri River Division's request of $109.3 million for this period, including the $9.3 million allocated by the Corps to be used to operate and maintain the 735 mile navigation and bank stabilization project from Sioux City to the mouth of the Missouri above St. Louis. No construction funds are requested for the navigation channel, which in 1983 was used by several barge lines and many shippers to move nearly 3 million tons of commodities up and down the river. There are no locks and dams on the navigable portion of the river, so maintenance costs are traditionally minimal.

There is one problem, however, that had constantly plagued those of us who operate boats and barges on the Missouri. It is the lack of a true nine-foot channel. Because we cannot load our barges consistently to a full nine-foot depth, we operate at a disadvantage on the Missouri in comparison to all the other inland waterways.

Over the years we have become engaged in a war of words with the Corps of Engineers over whether the navigable river channel should be maintained at a nine-foot depth or should be able to accommodate nine-foot barge drafts. The Corps has produced a 1981 memo which says: "Unless otherwise provided in the project authorization, channel depths specified will be construed as actual dredging limits (exclusive of overdepth dredging) and not as the draft limits of vessels to be accommodated."

Almost every inland waterway except the Missouri River can handle barges loaded to a nine-foot draft. In terms of tonnage, this means that barges loaded to 1400 tons on other rivers can be loaded to only 1200 tons on the Missouri. This results in less revenue for Missouri River barge lines and shippers because not as much product can be shipped per barge. In addition, grain shippers point out, they lose twice because it has been a policy in some instances at the gulf ports to discount—or pay less per bushel—for barges coming from the Missouri River because they have a light load. The reason is that the modern equipment can unload a 1400 ton barge as quickly as a 1200 ton barge. Barges coming on to the Missouri River with fertilizer, salt or steel also must be loaded lighter resulting in less savings of transportation costs for the shipper because barges are the cheapest way to haul bulk commodities.

A good example of the advantages of barge transportation can be seen at Atchison, Kansas, on the Missouri River, where the Atchison County Farmers Union Co-op has become in the past two years the largest single-point shipper on the river. According to the Co-op's 1983 annual report, "the development of a river barge fertilizer unloading program saved at least $8 per ton to area farmers and cooperatives on phosphate fertilizer."

The report goes on: "The lower cost of barge transportation has so significantly improved your cooperative's grain position in the area that we have influenced the price paid to farmers by all competitors. It is our belief that the Atchison market is over 6 cents per bushel better when compared to other grain markets only four years ago. This 6 cents premium is a dividend that you put in your pocket as cash every time you sell, even if it is not sold to the Co-op. This has got to be the most exciting benefit your Co-op has offered in years as it represents at least $700,000 each year to farmers in better cash prices."

The way farm prices have been, this is a very significant amount. It could be even greater if the barge lines could load their barges to a nine-foot draft and thus move more product at a cheaper rate.

Mr. Chairman, in 1981 I appeared before this subcommittee as director of the State of Nebraska's Missouri River Marketing Office. In my testimony, I quoted a barge line official who identified one of the main roadblocks to the development of the full potential of the Missouri River. He said, "There are several shallow spots on the river—the Corps has all the exact locations—and it would be helpful if we had a more consistent channel in those areas. Such might be provided by increasing dredging. . ."

It was identified as a problem then. It is a problem today. Why the Corps of Engineers won't recognize this, I do not know. A careful study of the Corps channel reports for the Missouri River indicates that the depth in most areas of the river is in the 11-12 foot range, which means it is plenty deep for barges loaded to a nine-foot draft. There are just a few areas each year that are too shallow to accommodate a fully-loaded barge. Because of these trouble spots, shippers, barge line operators and consumers are being unfairly penalized. We would like to see the Corps of Engineers undertake a program to dredge the few shallow spots that develop throughout the eight-month Missouri River navigation season. There has not been a dredging program in the Corps operation and maintenance budget for many years. We do not believe it would be that costly in light of the economic benefits that would be derived from such an operation.

Since the Corps has refused to consider this proposal, we are calling upon you to direct them to identify the trouble spots each year and initiate a dredging program to solve the problem. We do not think this would require any more money in their budget. It certainly doesn't require any authorizing legislation. If you would include this direction in the report that accompanies your appropriations bill, we feel it would be sufficient to move the Corps to action and increase the capability of those who operate on the Missouri River to generate more revenue for ourselves and our customers.

In closing, I would like to thank those of you who have steadfastly opposed increasing waterway user charges so the barge lines can remain competitive with other modes of transportation and continue to provide good service at a reasonable cost. In addition, we want to reiterate our strong opposition to the attempt by one of the nation's largest railroads to acquire one of the country's largest barge lines in violation of the Panama Canal Act. This case currently is pending before the Interstate Commerce Commission, but I realize your keen interest in insuring that the people of your Congressional District or state do not become captive of one mode of transportation. A monopoly such as this would be disastrous for the entire country. Thank you for your attention.

DOUGLASS LAKE, KANS.

STATEMENT OF J. W. SIMMONS, CHAIRMAN, BUTLER COUNTY COMMISSION, DOUGLASS LAKE, AUGUSTA, KANS.

Mr. MOODY. I will, if I may, introduce the other members of our group and they will each in turn take a few minutes to talk about their project.

Now, I would like to introduce J. W. Simmons who is chairman of the Butler County Commission and he will testify on behalf of Douglass Lake in Kansas.

Mr. SIMMONS. Thank you.

We also thank you, Senator Johnston.

I represent a great number of people that are very much concerned with the proposed Douglass Lake project. I have in our contingent Dave Winosa who is an aide to Senator Dole; Robert Shryrock, mayor of Augusta, Kans.; Jerry Cockrell representing the city of Douglass; Steve Whetstine, Rose Hill; Marilyn Johnson, Cowley County Commission; Dave Warren, city manager of Winfield; and Wichita Chamber of Commerce, Art Wood.

We would like to enter a few brief remarks. We do have testimony that we would like to put in the permanent record at this hearing.

I remind you that Kansas is the breadbasket of the United States and throughout the world. To fill these barges with bread we would like to remind you it takes grain as one commodity to keep the barges going.

I would like to also remind you that Kansas has a diversification of terrain, primarily they can plant in the western part. Locations for reservoirs can only be put in areas that are most suitable for it. I would like to remind you that the area we have reference to comprises approximately one-fourth the total population of the State of Kansas which takes in the Standard Metropolitan Area of Wichita, Butler County, Cowley County, and this immediate area.

Thank you.

Mr. McPherson. Next, Mr. Chairman, we have Mr. James G. Trimble who will testify on behalf of the Quindaro Bend Levee, Parkville, Mo.

Levee Unit L-385, Missouri River

STATEMENT OF JAMES G. TRIMBLE, QUINDARO BEND LEVEE, PARKVILLE, MO.

Mr. Trimble. Mr. Chairman, I would like to supplement the written statement of Mr. Bill Lata who is the chairman of the board of the Quindaro Bend Levee District. We are supporting the $200,000 appropriation for drawing the actual plans for construction of levee unit L-385. Numbers kind of get lost so I would like to tell you what L-385 is.

Quindaro Bend is the next bend in the Missouri River north of the confluence with the Kansas River which is right adjacent to the downtown Kansas City. Over the last 70 years, five levee districts have been constructed in the Kansas City area which are of such heights to allow industrial development protected by the levees. The Quindaro Bend would be the sixth one. Three of these existing ones are at the confluence of the river, two below, and this is the next one above to orient you with the geography of the area.

Quindaro Bend has all of the existing roads, railroads, arch facilities, including the largest crane on the Missouri River. It has a 26-inch high pressure gas line that has sufficient water; in other words, it has everything to allow industrial development protection from flooding. The present areas are reaching full capacity. There is very little vacant ground left and so it is important that we proceed with the development of plans so that this can be developed in time to be usable within the foreseeable future. We think it is a very important project for the entire Kansas City area and urge supporting the budget this year for this minimal request of $200,000.

[The statement follows:]

STATEMENT OF WILLIAM M. LATTA, CHAIRMAN OF THE BOARD, QUINDARO BEND LEVEE DISTRICT

The Directors of the Quindaro Bend Levee District have directed me to present to you the following in support of finding for the Levee Unit L-385.

With the great emphasis being placed on energy conservation on a world wide basis, we wish to point out what we believe are important factors thereto, which directly support Levee Unit L-385 and the certain industrial development that will follow.

The unique location of L-385 in relation to utilities, transportation arterials, downtown Kansas City, other major industrial areas already developed, large areas of recently developed housing and vast areas undeveloped suitable for single and multi-family housing certainly enhance its desireability. (see attached map)

Utilities
Kansas City Power and Light has already purchased an acreage within the Quindaro District adjacent to the Riverside District for future power substation. They already have a 12,470 volt major transmission line along the Burlington-Northern tracks. Missouri Cities Water Service has a 10-inch water main paralleling the railroad and power line through the Quindaro District. Cities Service Gas Company presently has a major natural gas valving and distribution station fed by a 26-inch high pressure main within the Quindaro District. Their lines pass through both districts paralleling the railroad. A Kansas City, Missouri 72-inch sanitory sewer is presently within the Riverside District.

Transportation
The Missouri River, one of the areas greatest natural transportation and recreational resources, is available on site with the river's largest loading crane within Quindaro. A 26-acre recreational facility with boat ramp and river access is two miles upstream at Parkville. Interstate Highway I-635 divides the Quindaro Levee District with a major interchange at Missouri Highway 9 within the District, making all major motor vehicle routes in the Kansas City area readily available. The main line of the Burlington-Northern Railroad divides both the Quindaro and Riverside Levee Districts with several switch tracks already available to both districts. The Fairfax Airport, located just across the river in Kansas and Kansas City Downtown Airport adjacent to Riverside, makes air freight and executive aircraft services available in a few minutes. These airports, and Kansas City International Airport, nine miles North, accomodate jet traffic.

Industrial Location
An industry relies on many other industries for materials, parts and services, therefore close proximity of industrial areas is not only desirable from a time standpoint but an energy conservation standpoint as well. The Riverside and Quindaro Districts have already established themselves as areas of industrial development as witnessed by the number of businesses and industries already in existence as well as others which have been proposed. The Fairfax, the Central Industrial District, and the North Kansas City Industrial areas are less than 15 minutes by automobile from Levee Unit L-385. Most other industrial areas are available in very little more time.

Housing Availability
The Mid-America Regional Council, the federally approved metro planning coordinator for seven counties, has released figures that show Southern Platte County the second most rapidly developing area in the MARC jurisdiction. There are vast areas suitable here for all types of housing development in close proximity.

All of the above mentioned items concerning utilities, transportation, adjacent industrial areas, housing, services, shopping and schools present a proximity to each other that is extremely enviable and unusual today. This entire picture lends itself neatly to today's requirements for present and future energy conservation with relative minimal expenditure.

We urge all parties and agencies concerned to lend full support for the successful completion of Levee Unit L-385.

HARRY S. TRUMAN DAM AND RESERVOIR

STATEMENT OF BONITA TOWNSEND, PRESIDENT, CLINTON CHAMBER OF COMMERCE, CLINTON, MO.

Mr. MCPHERSON. Mr. Chairman, we now have Bonita Townsend who is president of the Clinton Chamber of Commerce and she will testify on behalf of the Harry S. Truman Dam and Reservoir.

Ms. TOWNSEND. Thank you, Senator Johnston.

We would like to thank the committee for the help that they have given to the reservoir that is nearing completion now. We are seeing a lot of development. We are developing our tourism industry which is now taking the place of some of the farmlands that were lost. So we urge the committee to approve this and hope that we can complete the project as was promised 20 years ago.

Thank you.

Mr. MCPHERSON. Mr. Chairman, next we have Pete Werner who is sheriff of Henry County and he will testify on behalf of the Harry S. Truman Dam and Reservoir.

STATEMENT OF PETE WERNER, SHERIFF, HENRY COUNTY, CLINTON, MO.

Mr. WERNER. Mr. Chairman, as sheriff I have learned to be brief.

This project was started in 1960. The price tag was $43 million when it was started. It behooves us to have this project. Thank you for your consideration in the past.

Mr. MCPHERSON. Anchoring this group will be a person who has been before this subcommittee many, many years, Lew Paramore, who is executive vice president emeritus and one of the founders of the Missouri River Basin Association formerly known as Mr. MO-ARK. I turn it over to Lew.

STATEMENT OF LEW PARAMORE, EXECUTIVE VICE PRESIDENT EMERITUS, MISSOURI RIVER BASIN ASSOCIATION

Mr. PARAMORE. Thank you, Jim.

Senator Johnston, I will be very brief in my remarks.

Of course I support those who have testified and the projects they have testified for, but mainly I want to thank you and the other members of the committee and members who have served on this committee in the past for making appropriations available for flood control and its fringe benefits in the Midwest. I have a tabulation here that shows all of those projects constructed in the Kansas City District, U.S. Corps of Engineers. It cost us over $1 billion and we have saved a little over $3 billion. The savings have been threefold, a good capital investment in the future of our area and the country.

Thank you very much.

Senator JOHNSTON. Thank you. I know the good work you have done on the MO-ARK Association. I echo what you say about the value of flood control and navigation, it is a very small pittance part of the budget. It is less than one-tenth of 1 percent of the budget, and I am talking about the whole Corps of Engineers' construction general budget. It is only $800 million for 1985 and about $300 million of that is for overhead expenses, so really only about $500 million is for actual construction. There was nearly $2 billion just a few years back. We are certainly going to do what we can to promote these excellent projects you have been describing here.

Did you have anything else?

Mr. PARAMORE. Senator Johnston, if anyone wants additional copies, Jim McPherson can furnish them.

Senator JOHNSTON. Thank you.

[The statement follows:]

Estimate of Cumulative Project Costs & Benefits K. C. Dist

Phone: 374-3079 Lyle Marlett

Summary of Project Costs thru FY 1981 (in $1,000)

Project Name	Project Costs			O & M Costs		
	Total Costs	Federal	Non-Federal	Total O & M	Federal	Non-Federal
Lakes	$ 1,129,590	$ 1,129,590	$ 0	$ 101,656	$ 101,656	$ 0
Mo. R. Levee System	34,550	31,390	3,160	1,177	0	1,177
Local Protection	125,640	102,748	22,895	12,367	0	12,367
Total Costs	$ 1,289,780	$ 1,263,728	$ 26,055	$ 115,200	$ 101,656	$ 13,544

Summary of Project Benefits thru FY 1981 (in $1,000)

Project Name	Recreation	Water Supply	Water Quality	Power	Flood Control	Total Benefits
Lakes	$ 203,624	$ 1,534	$ 31,595	$ 17,438	$ 625,858	$ 880,049
Mo. R. Levee System	0	0	0	0	50,864	50,864
Local Protection	0	0	0	0	2,241,564	2,241,564
Total Benefits	$ 203,624	$ 1,534	$ 31,595	$ 17,438	$ 2,918,286	$ 3,172,477

Flood control benefits not included above: (in $1,000)

Upper Mo. R. Lakes = $ 1,027,087

Bureau of Reclamation = $ 30,517

These tables contain costs & benefits attributable to Corps Projects in the KCD.

Project Name	Estimated Project Benefits thru FY 1981 (In $1,000)						
	Recreation	Water Supply	Water Quality	Power	Flood Control	Other	Total Benefits
	$	$	$	$	$	$	$
Harlan Co.	20,233	0	0	0	13,402		33,635
Milford	20,291	0	0	0	83,659		103,950
Wilson	8,660	0	0	0	4,413		13,073
Kanopolis	15,039	0	0	0	31,139		46,178
Tuttle Cr.	22,272	0	19,550	0	296,998		338,820
Perry	20,291	0	0	0	133,163		153,454
Clinton	2,572	1,238	0	0	1,013		4,823
Smithville	3,540	0	0	0	10,436		13,976
Long Branch	736	229	1,482	0	458		2,905
Rathbun	15,868	0	1,441	0	13,713		31,022
Melvern	6,758	0	3,182	0	12,976		22,946
Pomona	15,875	67	5,940	0	18,305		40,187
Stockton	17,722	0	0	17,420	2,021		37,163
Pomme de Terre	31,590	0	0	0	2,224		33,814
H. S. Truman	1,597	0	0	35	1,988		4,623
	$	$	$	$	$	$	$
Total Lakes	203,624	1,534	31,595	17,455	625,358		880,569

Project Name	Estimated Project Costs thru FY 1981 (in $1,000)					
	Project Costs			O & M Costs		
	Total Costs	Federal	Non-Federal	Total O & M	Federal	Non-Federal
	$	$	$	$	$	$
Harlan Co.	47,705	47,705	0	10,950	10,950	0
Milford	49,103	49,103	0	9,186	9,186	0
Wilson	20,109	20,109	0	6,240	6,240	0
Kanopolis	12,538	12,538	0	7,262	7,262	0
Tuttle Cr.	80,377	80,377	0	9,455	9,455	0
Perry	49,040	49,040	0	8,827	8,827	0
Clinton	57,340	57,340	0	1,762	1,762	0
Smithville	86,100	86,100	0	993	993	0
Long Branch	23,100	23,100	0	691	691	0
Rathbun	27,127	27,127	0	7,216	7,216	0
Melvern	37,410	37,410	0	5,358	5,358	0
Pomona	13,997	13,997	0	7,789	7,789	0
Stockton	76,507	76,507	0	11,426	11,426	0
Pomme de Terre	17,097	17,097	0	9,489	9,489	0
H. S. Truman	532,000	532,000	0	5,012	5,012	0
Total Lake Costs	$ 1,129,590	$ 1,129,590	$ 0	$ 101,656	$ 101,656	$ 0

Project Name	Estimated Project Costs & Benefits thru FY 1981 (in $1,000)							
	Project Costs			O & M Costs			Benefits	
	Total Costs	Federal	Non-Federal	Total O & M	Federal	Non-Federal	Recreation	Flood Control
Mo. R. Levee System								
R 513 - 512	$ 2,223	$ 1,939	$ 284	$ 106	$ 0	$ 106	None	$ 4,127
R 500	439	408	31	103	0	103	"	855
L 497	1,926	1,734	192	72	0	72	"	3,296
L 488	1,553	1,497	56	114	0	114	"	4,916
R 482	1,170	1,081	89	110	0	110	"	2,657
L 476	1,617	1,520	97	114	0	114	"	3,228
R 471 - 460	3,915	3,482	433	50	0	50	"	4,790
L 455	4,742	4,270	472	61	0	61	"	4,486
L 448 - 443	2,920	2,740	180	114	0	114	"	11,625
R 440	1,652	1,567	85	110	0	110	"	3,268
L 408	6,403	5,683	720	36	0	36	"	2,828
L 400	1,183	1,073	110	89	0	89	"	2,696
R 351	3,521	3,222	299	58	0	58	"	2,092
Kimsey - Holley	1,286	1,174	112	40	0	40	"	No Record
Total MRLS	$ 34,550	$ 31,390	$ 3,160	$ 1,177	$ 0	$ 1,177	None	$ 50,864

Estimated Project Costs & Benefits thru FY 1981 (in $1,000)

Project Name	Project Costs: Total Costs	Project Costs: Federal	Project Costs: Non-Federal	O & M Costs: Total O & M	O & M Costs: Federal	O & M Costs: Non-Federal	Benefits: Recreation	Benefits: Flood Control
Local Protection Projects	$	$	$	$	$	$		$
Kansas Citys	47,553	42,433	5,120	8,906	0	8,906	None	2,139,150
Topeka	31,558	21,175	10,383	1,573	0	1,573	..	67,505
Lawrence	10,520	8,390	2,130	358	0	358	..	4,086
Big Stranger Cr.	343	337	6	85	0	85	..	469
Stonehouse Cr.	349	247	102	34	0	34	..	30
Manhattan	2,754	2,489	265	191	0	191	..	3,229
Frankfort	1,395	1,271	124	75	0	75	..	112
Fairbury	747	727	20	9	0	9	..	280
Seward	134	127	7	25	0	25	..	2,009
Abilene	1,386	1,099	287	67	0	67	..	No Record
Salina	5,839	3,879	1,960	207	0	207	..	4,923
Barnard	161	128	33	8	0	8	..	216
Clyde	1,057	881	176	30	0	30	..	23
Bartley	128	118	10	29	0	29	..	19
Indianola	75	67	8	26	0	26	..	23
Atchison	4,365	4,100	265	26	0	26	..	No Record
Bedford	616	587	29	9	0	9	..	60
Chariton R. (1944 Act)	8,788	8,053	735	512	0	512	..	5,628
Ottawa	5,339	4,463	876	157	0	157	..	12,327
Osawatomie	2,385	2,037	348	24	0	24	..	1,375
New Haven	151	140	11	16	0	16	..	100
Total Local Protection	$125,640	$102,748	$22,895	$12,367	0	$12,367	None	2,241,564

ADDITIONAL PREPARED STATEMENTS FOR THE RECORD

Mr. McPherson. That is all we have, Mr. Chairman. Thank you for your time.

Senator Johnston. Thank you.

[The statements follow:]

Recommendations for Appropriations of Kansas and Missouri Water Resource Projects for Fiscal Year 1985 by the Missouri River Basin Association

CORPS OF ENGINEERS PROJECTS—KANSAS CITY DISTRICTS

[Dollar amounts in thousands]

Survey or projects	Category	Budget	MRBA request
Blue River Channel, Kansas City, Mo	C	$2,800	$2,800
Brush Creek, Kansas City, Mo	S		350
Douglass Lake, Kans	D&E		400
Fort Scott Lake, Kans	P		542
Harry S. Truman Dam and Reservoir, Mo	C	7,400	7,400
Kansas and Osage River, Kans	S	318	500
Little Blue River Channel, Mo	C	1,400	1,400
Little Blue River lakes, Mo	C	13,000	13,000
Long Branch Lake, Mo	C	300	300
Lower Grand River, Mo	P		200
Melvern and Pomona Lakes (road improvements), Kans	P		25
Missouri River levee system, Iowa, Nebraska, Kansas, and Missouri:			
L-611-614	C	200	200
L-385	D&E	200	200
L-325-319	D&E	250	250
L-345-330	D&E		280
Osage River basin, Mo	S	200	200
River basins of Iowa (Missouri River and tributaries):			
Omaha District			430
Kansas City District			170
Tuttle Creek Lake, road and bridge, Kansas (1976 Act)	P		25

NOTE: Categories include study (S), supplemental preauthorization studies (SF), planning (P), construction (C), operation and maintenance (O&M), and advance design and engineering (D&E).

Witness List—Missouri River Basin Association

Joyce Bennett
Clinton Chamber of Commerce
Harry S. Truman Dam & Reservoir
Clinton, Missouri

Jerry Cockrell, Mayor
City of Douglass
Douglass Lake
Douglas, Kansas

Sue Cochran
Clinton Chamber of Commerce
Harry S. Truman Dam & Reservoir
Clinton, Missouri

Gordon Drake, Mayor
City of Warsaw
Harry S. Truman Dam & Reservoir
Warsaw, Missouri

Don Elefson
R.L.D.S. Church
Little Blue Lakes & Channel
Independence, Missouri

Dick Fleming
Upper Osage South Grand Assoc. Pres
Harry S. Truman Dam & Reservoir
Clinton, Missouri

Marilyn Johnson
Cowley County Commission
Douglass Lake
Winfield, Kansas

James A. McPherson
Executive Vice President
Missouri River Basin Association
Smithville, Missouri

Helen Machnicki
City of Clinton, Mayor Pro-Tem
Harry S. Truman Dam & Reservoir
Clinton, Missouri

Dave May
Independence Chamber of Commerce
Little Blue Lakes & Channel
Independence, Missouri

James G. Trimble
Quindaro Bend Levee
Parkville, Missouri

Randy Moody, Vice President
Missouri River Basin Association
Missouri River Navigation
Lincoln, Nebraska

Lew Paramore, Executive V-P Emeritus
Missouri River Basin Association
Kansas Flood Control
Toepka, Kansas

Robert Shryrock, Mayor
City of Augusta
Douglass Lake
Augusta, Kansas

J.W. Simmons, Chairman
Butler County Commission
Douglass Lake
Augusta, Kansas

Glen Toalson
Osage-Sac Area Association
Harry S. Truman Dam & Reservoir
Osceola, Missouri

Bonita Townsend, President
Clinton Chamber of Commerce
Harry S. Truman Dam & Reservoir
Clinton, Missouri

Dave Warren, Mayor
City of Winfield
Douglass Lake
Winfield, Kansas

Pete Werner, Sheriff
Henry County Sheriff
Harry S. Truman Dam & Reservoir
Clinton, Missouri

Steve Whetstine
City of Rose Hill
Douglass Lake
Rose Hill, Kansas

Jerry Williams, Past President
Clinton Chamber of Commerce
Harry S. Truman Dam & Reservoir
Clinton, Missouri

STATEMENT OF RICHARD L. BERKLEY, MAYOR, KANSAS CITY, MO.

Kansas City greatly appreciates the start of construction on the Blue River Channel Improvement project. Two contracts have been let and work is underway, albeit hampered by bad weather to date. Kansas City is pleased that work is underway.

On the other hand, the Brush Creek project is being delayed because of the lack of funding for final engineering design. This project is also extremely important to Kansas City, Missouri.

Brush Creek is a tributary of the Blue River, which drains through the heart of Kansas City, a basin of 29.4 square miles in size, lying in two states, three counties, and thirteen municipalities. While it is indeed an interstate project, the damages of the flood of 1977 were primarily within the boundaries of Kansas City, Missouri. These damages amounted to an estimated $66,406,000 and the death of 25 people (12 of which occurred in the Brush Creek basin).

The recent Corps of Engineers study recommended a flood control project beginning at Roanoke Avenue on the west, and extending easterly past Troost Avenue. The project as proposed would protect lives and property by keeping the devastating flood of 1977 within the first banks or between the Ward Parkway roadways within the limits of the project. The project consists of widening and deepening the channel plus some bridge modifications. The total estimated cost is $15,070,000. The benefit cost ratio of 1.4 to 1 is positive, and is highly recommended by the City of Kansas City, Missouri. The local share of costs to be borne by the City under the traditional financing arrangement would be $2.57 Million. Under the innovative financing, the City's shared cost would be $5.24 Million Dollars. Whichever cost sharing formula is approved, the City is prepared to respond in a positive manner.

We urge the adoption of an appropriations bill that includes an appropriation for the final engineering design of the Brush Creek flood control project. It would be unconscionable if we did not at this time strongly urge that this project move forward.

I further appreciate the sincere efforts evidenced by this body in the past by your support for our needed flood protection projects in Kansas City. As Mayor of Kansas City, I personally thank you for your help in getting the Blue River Channel project started after such a long and expensive delay. It is that kind of delay that we do not want to experience on Brush Creek. In that regard, I understand that the Corps of Engineers has the capability to expend $350,000 in fiscal year 1985 to begin design efforts on this project. Appropriations of those funds would allow design to begin while the project is being considered for authorization by the Congress.

STATEMENT OF HAYSVILLE, KANS.

The City of Haysville, Kansas, an incorporated city of the second class located south of Wichita in Sedgwick County, takes this opportunity to join in the request for continuous funding of the feasibility study for the Douglass Reservoir planned to be located approximately two (2) miles north and two (2) miles east of Douglas, Kansas in Butler County---about 23 miles southeast of Haysville.

As we understand the current situation, the proposed Douglass Reservoir is one of only two reservoirs being considered in the State of Kansas---the other being located near Ft. Scott in the southeastern part of the State. Whereas some of the communities downstream may have flood control as a primary reason for support, Haysville is considering the proposed reservoir as a future source of water supply for the city and the surrounding unincorporated areas.

The water supply problem is not an isolated problem of Haysville, but rather a regional problem. The scope of the water shortage anticipated in the planning period is of sufficient magnitude to cause the City of Wichita and fourteen other cities to begin preliminary planning and feasibility studies on a 135 mile pipeline to bring water from Milford Reservoir in northeastern Kansas. This program appears plagued with legal and political problems for the forseeable future.

Haysville's current source of water is four shallow wells in the Arkansas River Alluvium. Within the past three years, Haysville has lost the use of two additional wells through chloride intrusion which seeped from old oil wells in the area. Two new wells are being brought on line at the present time to replace the lost wells and bring the number of wells to six.

At the present time, Haysville has the rights for water which equate to approximately 2,500 acre feet of water per year. Based on the current population projections about the year 2000, Haysville's water requirement will exceed our supply. The maximum daily domestic demand figures used to generate this projection are somewhat lower than average because Haysville does not currently have the normal amount of commercial and industrial facilities which are often larger water users. Success in the current economic development areas and activities by the City Council, the Chamber of Commerce, the Economic Development Committee and others may change this projection and move the date closer.

Experience has shown that when we press our current system of water wells for peak demand, the quality of the water rapidly deteriorates. For now, when the demand is reduced, the quality of water improves within a reasonable time; however, an additional well is showing considerably higher chloride levels and may soon be lost due to contamination as the chloride intrusion continues to move.

Local surface water containment, such as planned at the proposed Douglas Reservoir, is necessary as a source for additional water in the 15-25 year time frame. Because of the extensive lead time to study and gain approval and funding for a reservoir project, it seems unwise to stop funding the feasibility study on this project at this point in time.

Preliminary estimates indicate that Haysville could extend lines from the local Douglass Reservoir---some 23 miles away---at considerably less cost than would result to the City from the 135 mile line at Milford---assuming the legal and political roadblocks can be overcome.

For these reasons, the City of Haysville believes the funding of the feasibility study should be continued on the Douglass Reservoir and urges you to restore funding levels in the current budget considerations. This local water impoundage will assist in down-stream flood control and---far more important faced with the deepening water shortages---it will provide additional water supplies by containing surface water.

Thank you.

STATEMENT OF JOHN R. MICHAEL, MAYOR, BLUE SPRINGS, MO.

On behalf of the Board of Aldermen of the City of Blue Springs, Missouri, I submit this letter of endorsement in full support of the funding for the Little Blue River Lakes Project. Our City officials feel that this project is vital to the economic and industrial development of this area. We respectfully request the Committee's favorable consideration of the appropriations that are needed in the fiscal year 1985 for this much-needed project.

STATEMENT OF HERMAN R. OGG, MAYOR, DOUGLASS, KANS.

We respectfully request your favorable consideration for the necessary funds to complete the feasibility study for the Douglass, Butler County, Kansas Reservoir. This area has experienced almost disastrous results of severe water shortages during the past few years, and this reservoir is an absolute necessity for the continued advancement and existence of the area.

In this period of economic re-trenching and attempts to reduce the massive federal deficit, we feel that the relatively small investment of $200,000 to complete this study will result in considerable savings in the long run. The economic well-being and future existence of the area of over 500,000 people could be hanging on the favorable approval of this study and future construction of the reservoir.

In addition to the much needed water supply, the construction of this lake would greatly improve the recreational facilities and would provide recreational outlets for the labor force at the major aircraft manufacturers in the Wichita areas: Boeing, Beech, Cessna, and Gates Learjet. In addition, it would provide a much needed recreational facility for the military and civilian work force at McConnell Air Force Base which is only 25 miles west.

The completion of the reservoir will also provide much needed flood protection for the immediate area plus several thousands of people in Cowley County, the cities of Winfield and Arkansas City, plus those living in the surrounding areas.

Please support us with your favorable consideration for the requested $200,000 planning funds for the completion of the study which should give us the vital supply of water required for our existence and future development.

STATEMENT OF ROBERT SHRYOCK, MAYOR, AUGUSTA, KANS.

The storage of water in Kansas is one of the most important facts in the continued struggle for the economic well being of the citizens of Kansas. During years of prolonged dry periods Augusta has special problems due to the lack of adequate large water storage basins and no underground aquifers to support the water system. To bring water to Augusta during these droughts, water must be pumped from wells on the Arkansas River and piped 30 miles to Augusta. This water is high in salts and iron and of very poor quality.

The construction of the Douglass Reservoir would retain large amounts of water in the area for municipal and industrial use and also for recreation purposes. The area of Butler, Sedgwick and Cowley Counties would benefit greatly from the containment of water which would assist immensely in the health and well being of people in the area. The benefits derived from containment of this water would have a direct benefit to over 100,000 people and an indirect benefit to 300,000 additional persons.

To emphasize the importance of the Douglass Reservoir the Commissioners of these counties have joined together with their many cities to support this project and would encourage the support of the United States Congress in giving this proposal a favorable review.

As Mayor of the City of Augusta, Kansas, I fully endorse this project and request that the money be approved for the Corps of Engineers to be allowed to continue to prepare plans for the construction of the Douglass Reservoir.

STATEMENT OF WILLIAM R. CHAPPELOW, PRESIDENT, INDEPENDENCE COUNCIL FOR ECONOMIC DEVELOPMENT

Thank you for the opportunity to present a statement of the Independence Council for Economic Development in support of the Little Blue Flood Control project.

The Independence Council for Economic Development is a not-for-profit corporation formed by Independence business and governmental organizations to promote the planned and orderly development of desirable commercial and industrial lands within the city and to expand local employment opportunities for Independence residents by encouraging the retention and growth of established businesses as well as attracting new industry to the city.

Much of the land within the city lies in the present flood plain of the Little Blue Valley which represents a very important part of the industrial potential of Independence.

The city's comprehensive plan proposes industrial park zoning with open space requirements and attention to aesthetics within the present flood plain. Federal, state and local agencies have cooperated for more than a decade in preparation for the completion of flood control within the valley. Included is the installation of an interceptor sewer trunk line with modern treatment plant facilities at a cost of over $100 million.

Within the valley lies the greatest reserve of available industrial land within the entire metropolitan Kansas City area. Upon the completion of the Corps of Engineers project and the removal of present flooding problems, we look forward to an era of unprecedented economic growth in the eastern area of our city.

We respectfully request that appropriate funds be included in the budget for fiscal year 1985 and in future years for the completion of the project including the necessary Longview and Blue Springs water retention reservoirs.

STATEMENT OF BONITA J. TOWNSEND, PRESIDENT, CLINTON (MO.) CHAMBER OF COMMERCE

As President of the Clinton Chamber of Commerce, I am asking that you consider again, our need to see the completion of the Harry. S. Truman Dam & Reservoir project.

The Reservoir has brought a new industry to our area, Tourism. We are just beginning to see tourism revenues take the place of the loss in agricultural income our area suffered with the taking of lands for the new lake.

We want to see this project completed in its entirety as it was promised us some 20 years ago.

The monies mentioned in the proposed budget are sorely needed to complete roads, campgrounds, vault toilets, campsites, etc. to accommodate the tourists who are learning about the area through our Chamber promotions. There were some 2,132,000 visitors to the Reservoir in 1983 with twice that proposed for 1984.

We want to express our sincere appreciation for the appropriations in past years that have brought the project to its present state.

Now we ask that you allow the further appropriations to complete the project in order that we might promote a lake with full facilities and enjoy the revenues this creates, revenues that are so vital to the economic growth of our area.

STATEMENT OF PETER R. WERNER, SHERIFF, HENRY COUNTY, MO.

As the Sheriff of Henry County and representative of the Henry County Court, I respectfully request this subcommitte recomend allocation of funds to complete portions of the Truman Reservoir as requested by the United States Army Crop of Engineers.

This project has been delayed for various reasons and is many years past due in completion. The citizens of this area have been discouraged by the broken promises on completion dates. These broken promises relate to the development of "visitor facilities" that will assist this area in recouping the lost tax revenues through the development of the tourism industry.

The funds requested are for completion of roads, toilets, campsites, and other facilities to complete the project.

I also would like to express my appreciation and sincere thanks for your cooperation and understanding through the past funding of this project.

STATEMENT OF T. DICK FLEMING, PRESIDENT, UPPER OSAGE-SOUTH GRAND BASIN ASSOCIATION

The delegation in Washington today from out state Missouri and the Harry S. Truman Dam and Reservoir area are making one singular request. "Complete this massive project."

Twenty years have passed since its inception. Almost a half billion dollars have been spent and still the most impacting part of the project to local economy is only fifty percent complete.

Not only are the public use areas the most impacting they are apparently the least expensive. They are the key to recovery from an area which lost revenue from productive land and taxes.

We are told by competent leadership in the office of the Corp of Engineers that dollars expended today on the project seem to be going farther, because of more competitive bidding. The completion of our goal is in sight.

Already we are experiencing growth in the Golden Valley area. New shopping centers, motels, hotels, housing developments and a variety of retail outlets are being built in anticipation of the projects completion.

The results of the growth is a lowering of the unemployment in the area and developing job market for the hardest hit by the last recession. The unskilled. A good labor market is being developed.

Heavy Spring rains in 1983 were kept in check by the Dam and downstream areas often devastated by floods in the past did not suffer. The project through the generation of electrical power, flood control, and public use is returning the investment made by the government.

We need only to finish the job and we need your help to do that. Our request is full Corp capability, 7.4 million. A small sum by comparison, a large item in fact.

I extend appreciation to you as President of the Upper Osage South Grand Basin Association. A personal appreciation for your past support and we look forward to your future interest.

Statement of David E. Warren, City Manager, Winfield, Kans.

The City of Winfield, Cowley County, Kansas, (population 11,866) is located approximately 28 miles south of the proposed Douglass Reservoir site.

The City's water supply is a multi-purpose reservoir built under Public Law 566 with assistance from the Soil Conservation Service, USDA. The Winfield City Lake is located 18 miles due south of the proposed Douglas Reservoir and has a water supply capacity of 8,183 acre-feet (2.66 billion gallons).

The Winfield municipal water system serves 4,400 retail customers, four rural water districts with a total of 764 customers and the City of Oxford, Kansas, with 515 customers which customers altogether represent a population of approximately 15,200. Three other incorporated cities with a combined population of 1,140 have emergency water supply contracts with the largest rural water district.

Since completion of the City's lake in 1971, annual water demands have increased from 540,401,000 gallons to 830,249,000 gallons in 1983, an increase of 290 million gallons or 54 percent in 12 years. At the present average daily consumption of 2,275,000 gallons, the lower limit of the City's water supply pool would be reached under drought conditions at a 20-year frequency which has a 5 percent probability of occurring. Although the City's water supply has an acceptable probability of being a firm supply, no alternate or back-up source of water exists. If annual water demands continue to increase according to the historical trend, by the year 2,008 the average daily requirement of 4.0 million gallons would cause the lake to be only a 90 percent firm supply. The water supply pool would be in danger of exhaustion under drought conditions at 10-year intervals. This condition is below the acceptable level for a firm water supply.

Evidence of continued higher demands on Winfield's water supply system exists due to the continued growth of the community and other contingency needs for additional water consumption.

At present, a proposed rural water district is seeking to purchase 15,000,000 gallons of water per year from Winfield. The City of Winfield may be called upon to supply treated water to the Strother Field Airport/Industrial Park at the rate of 120,000,000 gallons per year. This industrial complex, five miles south of Winfield, where approximately 2,000 persons are employed, has groundwater pollution which has caused the water supply wells to be prohibited for use as drinking water by the Kansas Department of Health and Environment. Unless the source of ground water pollution at Strother Field can be removed economically, a treated water pipe line from Winfield may be more cost effective than providing facilities for treatment of the underground water supply to remove chemical pollutants.

Considering the time required to develop additional water supply, continued planning for the Douglass Reservoir is a certain need at this time.

In addition to the water supply benefits, the Douglass Reservoir located on a tributary of the Walnut River which flows past Winfield would be a means of flood protection for our community. Douglass Reservoir is estimated to reduce the 100-year flood peak discharge at Winfield from 121,000 cfs to 93,000 cfs or 23 percent.

Winfield's proposed Corps of Engineers local flood protection project was authorized by the Flood Protection Act of 1965, which also authorized the El Dorado, Towanda and Douglass Reservoirs. In 1975, the Winfield flood protection project was determined to have a benefit-to-cost ratio of 0.42, an inadequate ratio for funding, and was subsequently reclassified to an "inactive" status. This unfavorable benefit-to-cost ratio was predicated on all three reservoirs authorized for the Walnut River basin being constructed. Only the El Dorado Reservoir is in place. Plans for the Towanda Reservoir have been abandoned. Due to these changes in the study conditions the U. S. Army Corps of Engineers is presently reevaluating the feasibility of the Winfield flood protection project under conditions both with and without the Douglas Reservoir project. If the Winfield flood protection project does not have a favorable benefit-to-cost ratio either with or without Douglass Reservoir, the Douglass Reservoir itself will be a last resort to reduce the flood hazard confronting Winfield from the Walnut River. To achieve the maximum affordable degree of protection from flooding, the Winfield City Commission considers both the levee and reservoir projects as necessary.

Winfield is one of many communities in Butler, Cowley and Sedgwick counties in Kansas that will benefit from this project by flood protection for the Walnut River basin and a regional water supply.

The Winfield City Commission respectfully requests that funds be appropriated in the fiscal year 1985 federal budget in order to continue feasibility studies for the Douglass Reservoir.

STATEMENT OF JOHN P. EWING, MAYOR, ROSE HILL, KANS.

This letter is to indicate the City of Rose Hill's support for the Douglass Reservoir Study. It is the governing body's contention that water supply and storage is not only a concern at the present, but will become an increasing concern in the future. Conservation has to be an important part of water planning but also plans need to be deveolped to ensure future generations of water supply.

For the purposes of water supply, economic development, residential needs and rural water demands, it is our belief that additional reservoirs are a must in this region. Not only would Douglass, Rose Hill and other cities in the close vicinity of the proposed reservoir benefit, but many cities and communities within a larger area would solve long-range water problems. Many of these communities are within Sedgwick, Harvey, and Cowley counties, as well as Butler.

The residents and officials of the City of Rose Hill, urge your commitment to fund a study on the feasibility of the Douglass Reservoir. It is the responsibility of governing bodies to plan not only for our generation, but for the future as well.

STATEMENT OF BARBARA POTTS, MAYOR, INDEPENDENCE, MO.

The City Council of Independence, Missouri, fully supports appropriations for the ongoing Flood Control Program of the Little Blue River Valley of Jackson County, Missouri.

The eastern part of our county has had a long history of flood problems. As the largest community downstream, Independence has particularly taken the brunt of the flood problem.

We are very pleased with the progress to date on the impoundment reservoirs and stream channelization but wish to impress upon you the importance of completing the project now underway. Therefore, we respectfully request that the appropriations bill for the next fiscal year for the Little Blue River Basin projects be funded to the full capabilities of the Corps of Engineers.

STATEMENT OF MARILYN J. JOHNSON, CHAIRMAN, COWLEY COUNTY (KANS.) COMMISSIONERS

As an elected public official, I feel a responsibility to preserve, protect and conserve the water supply for future generations.

The community which I represent is primarily industrial and agricultural and heavy dependence is placed on the available water supply. The present feasibility study will enhance the economy, the environment, and provide an inducement for any future business expansion.

My community has an industrial complex located and owned by two second class cities. Residents of not only those cities, but the surrounding small communities, are employed at this industrial complex. The complex, Strother Field, has had some serious water contamination problems. While Strother Field commissioners are seeking solutions to the problems, the matter of suitable water supply is serious.

You and your committee know the other benefits of this proposed project - such as flood control, recreational facilities and general environmental benefits. I ask that you respectfully consider all of these benefits to arrive at a favorable decision to fund the Douglas Reservoir.

STATEMENT OF TOM M. LINOT, CHAIRMAN, BUTLER COUNTY (KANS.) BOARD OF COMMISSIONERS

The Board of County Commissioners fully recognize the long standing need for flood control, an immediate need for quality and quantity of a good water supply with little likelihood of long range pollution and land-related recreation development. The proposed Douglass Reservoir will accomplish all three of these criteria.

The proposed Douglass Reservoir site lies within the Wichita Standard Metropolitan Statistical Area which includes Butler and Sedgwick Counties and is the most populous SMSA in Kansas. The 1980 census recorded 411,313 residents in the SMSA. Also all of Cowley County will benefit from this reservoir with flood control and quality water as well as water and land related recreation development. The addition of the population will put the the number well over 500,000 directly benefitted by flood control and quality water.

The project was authorized for construction by the 1965 Flood Control Act approved October 27, 1965. Some funding was included in the fiscal year 1984, Energy and Water Development Appropriations Act(Public Law 98-50 dated July 14, 1983) to help update federal planning criteria prior to performing detail design work required before construction. This work to start beginning October 1, 1983.

The three counties-Butler, Sedgwick and Cowley, have jointly contracted a professional engineering firm to do a preliminary study determining the demands for water in each county. Growth projection in the three county area, finances necessary for construction of the water portion of this project and capabilities to complete.

We are asking $200,000 at this time for completion of the feasibility study to re-evaluate the economic merits of the project using the currect federal criteria. We feel the water supply portion of the project benefits would increase substantially based upon changes in our economic guidelines since the time of project authorization.

It is for these reasons that we request the full capability of the United States Army Corps of Engineers be authorized for the advance design and engineering for this project.

STATEMENT OF GLEN F. TOALSON, CHAIRMAN, OSAGE-SAC ASSOCIATION OF THE MISSOURI RIVER BASIN ASSOCIATION

As Chairman of The Osage-Sac Association of the Missouri River Basin Association, I wish to express appreciation to you and your colleagues for concern and realization of the extreme importance of Water Resources.

Today marks my 26th trip to this City in support of Water Project, and this is my 16th consecutive appearance before this committee. Specifically, Mr. Chairman, I'm here today to support the earliest possible completion of the public use areas in the Harry S. Truman Project.

For FY 1985, we request funding of 7.4 million dollars, part of which is for the recreational areas' construction. Again, we are faced with the cost sharing problem, and while we agree this might be the proper approach for future projects, it should not apply to our Truman Project. I want to point out that House Document #578 provides that Recreational Areas in Truman Lake will be 100% funded by the Federal Government. For three years consecutively, I have been in conference with the Assistant Secretary of the Army on Civil Works concerning the provisions of this House Document.

Thank you very much for courtesy extended me today and in the past.

STATEMENT OF GORDON H. DRAKE, MAYOR, WARSAW, MO.

The Harry S. Truman Dam and Reservoir has a FY-1985 recommended budget of some $7,400,000.00 for construction. This amount includes $2,950,000.00 for further development of the recreation facilities (Public Use Areas) in the Reservoir area.

The citizens of Benton County and the City of Warsaw are grateful to have this $2.95 million included in the proposed budget.

Congressional authorization for the Truman project was under the Flood Control Act of 1962, the existing law at that time. Our understanding is that this authorization provided for total funding by the Federal Government for recreational areas and facilities as well as for flood control, water conservation, and hydroelectric power.

Inasmuch as the land for the Public Use Areas at the Truman Reservoir has been purchased and some of the facilities in these areas already constructed it would appear to be the responsibility of the Federal Government to continue funding of these recreational facilities. Completion of these facilities should in some measure offset the loss to the economy which Benton County has experienced the past several years with the displacement of virtually all agriculture in the Reservoir area for which the Truman Project is directly responsible.

Furthermore, it shoud be pointed out that Benton County, the City of Warsaw, or the other conunties and cities in the Reservoir area do not have the financial resourses to provide any of these facilities on a cost sharing basis.

We, therefore, respectfully request that the proposed $7.4 million for construction be included in the FY-85 budget.

With what has been budgeted to date it is our understanding that from the original Truman project plan some $11.9 million for proposed recreational facilities will remain unfunded. We, therefore, further request that future FY-budgets include total federal funding for full completion of the recreational phase of the Truman project because of the fiscal inability of local units of government to participate in the funding of these facilities on a cost sharing basis.

STATEMENT OF HELEN MACHNICKI, MAYOR PRO-TEM, CLINTON, MO.

Thank you for the opportunity to be present today as a representative of the City of Clinton, Missouri, on behalf of the Harry S. Truman Dam and Reservoir Project.

This project was started twenty-two years ago and is still incomplete. It has been delayed by war, economics, environmental objections and downstream problems. We have lost many acres of land, agri-business and tax dollars to this lake and we are unable to compensate for this loss without developed recreation areas for tourism and its related industries.

We therefore ask that the proposed seven million four-hundred thousand dollars (7.4 million) be included in the 1985 budget and that you continue to fund it to the full capabilities of the Corps of Engineers.

The City of Clinton also wishes to express its concern and opposition to the proposed future cost-sharing for the completion of this project. State and local governments are financially not able to assume this burden, and the recreational facilities were promoted and promised to us when this project was begun.

We appreciate the thoughtfulness, consideration and generous support you have given us in the past and would like to thank you for your continued interest in our future.

STATEMENT OF JACK SPRATT, CHAIRMAN, SEDGWICK COUNTY (KANS.) BOARD OF COUNTY COMMISSIONERS

I am Chairman of the Sedgwick County Commission and the Commissioner in the third Commission District of Sedgwick County, Kansas. My district includes a central corridor of the City of Wichita; the cities of Andale, Bentley, Cheney, Clearwater, Colwich, Goddard, Garden Plain, Mount Hope, and Viola. It also includes the southwestern and the northwestern portion of Sedgwick County, Kansas. The citizens I represent have a keen interest in water-related issues for the following reasons;

(1) *Projections for the City of Wichita, the small cities in Sedgwick County, and the rural water districts all indicate that additional supplies of water will be needed by the mid- 1990's and such needs will continue well into the next century.*

(2) *Groundwater supplies in some portions of my district have been contaminated by the intrusion of salt and other minerals. For example, the City of Mt. Hope lost one municiapl water well to salt intrusion during the past year and other nearby municipal supplies are threatened. Several irrigated orchards and other similar agricultural activities have been threatened or shut down by salt ridden ground water in my district.*

(3) *Kansas, in general, is a dry state with water often being a limiting factor for agriculture, business and industry, and domestic use. Thus, all Kansans, including my constituents, are deeply concerned about water projects.*

As you can see, both my constituents and I are most interested in any water project which can address our needs and concerns and provide positive benefits to us.

Therefore, I offer my strongest support and endorsement for the continuation of the feasibility study for the proposed Douglass Reservoir Project in Butler County, Kansas. I further offer unqualified support for continued federal funding for the feasibility study. The proposed Douglas Reservoir project offers a potential source of water supply for rural water districts and small cities in Sedgwick County as well as providing similar benefits for our counterparts in Butler and Cowley Counties, Kansas. Furthermore, the project also offers long-term recreational and flood protection benefits for residents of the area. Finally, a surface water impoundment, such as the proposed Douglasss Reservoir, is less subject to contamination than our local ground water supplies and, therefore, may be a more reliable source for water supply.

I urge you to authorize continuous funding for the feasibility study for the Douglass Reservoir in Butler County, Kansas. Your attention to my comments is most appreciated.

STATEMENT OF FRANCIS E. HANSEN, PRESIDING BISHOPRIC, REORGANIZED CHURCH OF JESUS CHRIST OF LATTER DAY SAINTS

Thank you for this opportunity to submit a statement in support of the "Plan of Improvement for Flood Control and Water Resources for the Little Blue River" in Jackson County, Missouri.

The record flood of August 1982 which devastated the Valley of the Little Blue River is still fresh in our memory. Our hopes and our concerns are likewise with us at this time. Our "hope" is that we are at long last looking at an early completion of this vital flood control program. Our "concern" is that nothing inhibit the full capability of the Corps of Engineers. Your careful attention to this matter which is so important to the communities of the Little Blue River Valley is solicited.

The Corps of Engineers have indicated a capability for the 1985 fiscal year of $13,000,000 for construction of the Longview and Blue Springs Lakes, and $1,400,000 for the Little Blue River Channel work. We would request consideration be given to the full capability of the Corps of Engineers,

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STATEMENT OF FRANK E. EMERY, PUBLISHER, FORT SCOTT, KANS.

An adequate water supply and flood control measures still continue to be extremely important for long-range planning in Eastern Kansas. We were extremely pleased that the Fort Scott Lake was placed on active status by the Secretary of the Army on September 13, 1984.

Although additional funding is not being requested at this time, we wish to support the Army Corps of Engineers project for this area.

With increasing support at the state level, hopefully we will continue to help justify the need for this project.

The Fort Scott Lake project is and will continue to be a critical link to the future of Southeast Kansas.

STATEMENT OF T. L. FARMER, DIRECTOR OF PUBLIC WORKS, BUTLER COUNTY (KANS.) HIGHWAY DEPARTMENT

This is a statement in support of the proposed Douglass Reservoir in Butler County, Kansas. I believe this project is worthy and necessary for the following reasons:

1. It will provide flood control for land well downstream of the proposed site near Douglass, Kansas. This control, when added to that already in place at El Dorado with the El Dorado Reservoir, will provide significant savings to roads, highways and bridges and preserve farm land and top soil.

2. There is an increasing need for additional potable water due to the expanded suburban growth in the area. Butler County is a zoned county. Therefore better control can be achieved with adequate water which allows more concentrated and thus more cost effective development. It is a well known tenant of zoning that proper management and control of utilities gives less scattered and more economical growth.

3. Down stream water quality will be greatly improved with the Douglass Reservoir in place. This will enhance wildlife, recreation and the quality of life along the river. In addition it will improve water intake conditions for those communities downstream who draw their drinking water from the river.

STATEMENT OF TOM SCOTT, SEDGWICK COUNTY (KANS.) COMMISSIONER

I am the County Commissioner in the Second Commission District of Sedgwick County, Kansas. My district includes a central corridor of the City of Wichita; the cities of Derby, Haysville, and Mulvane; and the southeastern portion of Sedgwick County, Kansas. The citizens I represent have a keen interest in water-related issues for the following reasons:

(1) *Projections for the City of Wichita, the small cities in Sedgwick County, and the rural water districts all indicate that additional supplies of water will be needed by the mid-1990's and such needs will continue well into the next century.*

(2) *Groundwater supplies in some portions of my district have been contaminated by the intrusion of salt and other minerals. For example, the City of Haysville lost two municipal water wells to salt intrusion during the past year and other nearby municipal supplies are threatened. Several irrigated orchards and other similar agricultural activities have been threatened or shut down by salt ridden ground water in my district.*

(3) *Kansas, in general, is a dry state with water often being a limiting factor for agriculture, business and industry, and domestic use. Thus, all Kansans, including my constitutents, are deeply concerned about water projects.*

As you can see, both my constituents and I are most interested in any water project which can address our needs and concerns and provide positive benefits to us.

Therefore, I offer my strongest support and endorsement for the continuation of the feasibility study for the proposed Douglass Reservoir Project in Butler County, Kansas. I further offer unqualified support for continued federal funding for the feasibility study. The proposed Douglass Reservoir project offers a potential source of water supply for rural water districts and small cities in southeastern Sedgwick County as well as providing similar benefits for our counterparts in Butler and Cowley Counties, Kansas. Furthermore, the project also offers long-term recreational and flood protection benefits for residents of the area. Finally, a surface water impoundment, such as the proposed Douglass Reservoir, is less subject to contamination than our local ground water supplies and, therefore, may be a more reliable source for water supply.

I urge you to authorize continuous funding for the feasibility study for the Douglass Reservoir in Butler County, Kansas. Your attention to my comments is most appreciated.

STATEMENT OF DAVID L. MAY, EXECUTIVE VICE PRESIDENT, INDEPENDENCNE (MO.) CHAMBER OF COMMERCE

The Independence, Missouri Chamber of Commerce fully supports appropriations for the ongoing Flood Control Program of the Little Blue River Valley of Jackson County, Missouri.

Over the years eastern Jackson County has had a long history of flood problems and Independence, being the largest community downstream, has particularly been affected by the flood problem.

We feel the progress to date on the impoundment reservoirs and stream channelization has been good, but wish to impress upon you the importance of completing the project now underway. Therefore, we respectfully request that the appropriations bill for the next fiscal year for the Little Blue River Basin projects be funded to the full capabilities of the Corps of Engineers.

STATEMENT OF WILLARD C. BECKER, SECRETARY-TREASURER, ATHERTON (MO.) LEVEE DISTRICT

I appreciate the opportunity to submit a statement in support of appropriations for continuing construction of the Little Blue River Lakes of Longview and Blue Springs in the amount of $13,000,000 and $1,400,000 for the Little Blue River Channel work which is the capability of the Corps of Engineers.

We in the area of the Atherton Levee District, which is located down stream from these two lakes, consider these projects to be vital. The projects are necessary to help remedy recent damage of bank erosion and levee breaking which has happened during periods of high run-off which has taken place now that the upper channel has been straightened and improved. The projects, when completed, will be of value to this area of Jackson County.

I respectfully request appropriations to the capability of the Corps of Engineers to bring Longview and Blue Springs Lakes to a rapid completion.

STATEMENT OF JERRY WILLIAMS, PAST PRESIDENT, CLINTON (MO.) CHAMBER OF COMMERCE

Completion of the Harry S. Truman Dam and Reservoir Project is an absolute necessity for the economic well being of our community. This is our plea today and will be until such time we can say the job is done and a job done well.

As stated in the past, the loss of land has had a great economic impact on our communities. However, also stated was the fact the land production loss would be and has been replaced by the industry of Tourism. Tourism is in place and growing at a very steady pace. It was reported by the Corps of Engineers that in 1983 there were two million plus visitors to our reservoir and an anticipated doubling of that number in 1984. Therefore, to support this kind of growth potential and to be able to accommodate those visitors, we need to have this project completed.

It goes without saying that none of this could have been achieved without your continued support throughout these twenty years. We are close to the top; let us not falter now with the end of our goals in sight.

STATEMENT OF DOROTHY H. FLOTTMAN, KANSAS STATE REPRESENTATIVE

Kansas has long been known as "The Bread Basket of the World." Our State is not only a leader in wheat production, but we are also recognized for our other grains and feed crops. Raising and feeding livestock is another important segment of agricultural business for Kansas farmers. Indeed, Kansas is an agricultural State which millions of people depend on for supplying their food and meat.

It is important, therefore, that Kansas continue to provide these necessities of life to our fellow Americans, as well as to citizens of other countries. To do this an adequate water supply is vital. The Douglass Reservoir would assure area farmers of a dependable, continuing source of water.

Those of us involved in the legislative process realize we must act responsibly to encourage the conservation of water, as well as provide reservoirs to contain the water where it falls. Preliminary research has shown the Douglass site would do just that provide an adequate source of water for those living and/or farming in the area. The water would not be wasted.

As you consider the request that funding be continued for the feasibility study of the Douglass Reservoir, I hope your response will be favorable.

ILLINOIS WATER PROJECTS

PREPARED STATEMENT

Senator JOHNSTON. I also want to make part of the record a statement submitted by the Governor of Illinois and the Upper Mississippi Flood Control Association which covers several projects in that area.

[The statement follows:]

LETTER FROM GOV. JAMES R. THOMPSON OF ILLINOIS

March 23, 1984

Honorable Mark O. Hatfield
Chairman
Subcommittee on Energy and Water Development
Committee on Appropriations
United States Senate
1322 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Chairman:

Attached, please find five copies of the State of Illinois' proposed project list for the fiscal 1985 budget of the Corps of Engineers. I will appreciate your consideration and favorable action on this request.

The attached list identifies those Corps of Engineers projects that are of high priority to the State of Illinois. Each of these projects have been analyzed by four separate Illinois agencies and were found meritorious and worthy of inclusion in the fiscal 1985 appropriations for the Corps. The projects were scrutinized using the most recent information concerning cost, need, local sponsorship and Corps interest. The list includes items contained in the President's fiscal 1985 budget request and others that we propose for special consideration.

It is my hope that you will include these projects in the fiscal 1985 Energy and Water Development Appropriations Act. Should you require any supporting documentation for these projects or other information, please don't hesitate to contact Neil R. Fulton, Bureau Chief, Illinois Division of Water Resources at 312/793-3123. I request that this correspondence and the attached projects list be included in the hearing record of the Subcommittee.

Kindest regards.

Sincerely,

James R. Thompson
James R. Thompson
GOVERNOR

The State of Illinois supports the following projects, which are contained in the President's fiscal 1985 budget:

Surveys

Alexander & Pulaski Counties	$ 350,000
C-SELM	230,000
Chicago Underflow Plan	810,000
St. Louis Metro Area	1,170,000
St. Lawrence Seaway - Additional Locks	470,000
Great Lakes Connecting Channels & Harbors	1,039,000
Mackinaw River	125,000

Construction

E. St Louis & Vicinity	$ 3,100,000
Brandon Road Lock & Dam (Rehab)	10,800,000
Lockport Lock & Dam (Rehab)	11,800,000
Kaskaskia River Navigation	5,300,000
Lock & Dam No. 26	89,500,000
Lock & Dam No. 53 (Rehab)	1,240,000
Milan	2,180,000
Rockford	1,100,000
Smithland Locks & Dam	1,800,000

Operation and Maintenance

Mouth of Sangamon River	$ 24,000
Carlyle Lake	3,160,000
Calumet River & Harbor	1,470,000
Chicago Harbor	686,000
Chicago River	396,000
Chicago River (Diked Disposal)	110,000
Illinois & Mississippi Canal	469,000
Waukegan Harbor	521,000
Waukegan Harbor (Diked Disposal)	512,000
Lake Shelbyville	4,249,000
Rend Lake	2,733,000

Illinois also supports adequate and continued operation and maintenance of the Mississippi River, Ohio River, Kaskaskia River and Illinois Waterway navigation projects.

Continuing Studies

Floodplain Management Services	$ 500,000
Section 22 of P.L. 93-351	200,000
Section 107 of P.L. 86-645 (Illinois Shore of Lake Michigan)	170,000

In addition to the projects in the President's budget for which we have indicated support, the State of Illinois also has additional needs and priorities which are listed below:

Surveys

Loves Park (CP&E)	200,000
South Quincy (CP&E)	150,000
North Branch Chicago River (CP&E)	500,000
St. Louis Harbor (CP&E)	100,000
Increased Diversion Demonstration Project - Lake Michigan	218,000
Lock & Dam No. 26 Second 600' Lock (CP&E)	5,000,000
Quincy Bay	313,000

The above projects are contained in pending authorization bills and CP&E funding is required to prevent delay in implementation.

Funding for the second lock at Lock and Dam 26 in FY 1985 will result in saving $95 million during construction.

Illinois Shoreline Erosion Lake Michigan (BE)	$ 90,000

Advanced Engineering and Design

E. St. Louis & Vicinity Cahokia Canal & Harding Ditch	$ 150,000

Construction

Moline	$ 1,500,000

Operation and Maintenance

Lake Michigan Diversion Measurement & Accounting	$ 200,000
Mississippi River between Missouri River & Minneapolis Lock Capacity Study	100,000
Illinois Waterway - Crow Creek Erosion Control Demonstration	100,000

STATEMENT OF THE UPPER MISSISSIPPI FLOOD CONTROL ASSOCIATION

The Upper Mississippi Flood Control Association is very appreciative of the privilege of once again presenting testimony relative to flood control matters within the confines of our Association which extends from Guttenberg, Iowa to Hamburg Bay, Illinois, some 350 river miles along both sides of the River and encompassing portions of the three States of Missouri, Illinois and Iowa.

We are not requesting funding at this time for projects not included within the President's Budget for F.Y. 1985, except for continuing study in the South Quincy Drainage District. We are aware of the restraints placed upon the Army's Civil Works Program and the objectives of avoiding larger Federal Budgetary deficits.

Our Association does, however, wish to apprise your Honorable Committee of the status of our Member Districts projects.

A brief summary of our requests and Projects status is as follows:

AUTHORIZED PROJECTS AND STUDIES

SURVEYS AND STUDIES	BUDGETED	REQUESTS	REMARKS
1. South Quincy Drainage and Levee District, Illinois (F.C.)	0	150,000	Continuing Study. See following
2. Green Bay Levee and Drainage District No. 2, Iowa (F.C.)	0	0	See discussion
3. Muscatine Island Levee and Drainage District, Iowa (F.C.)	0	0	See discussion
4. Mississippi River, Coon Rapids Dam to Ohio River (Projects Review), Illinois, Iowa and Missouri (F.C.)	$1,012,000	$1,012,000	No additional requirements, Continue Study

The above projects are briefly discussed in order of sequence as follows:

1. The "Final Feasibility Study For Flood Damage Reduction, South Quincy Drainage and Levee District, Illinois" has been completed and has been approved by the Board of Engineers For Rivers and Harbors. We are not aware of any difficulty with OMB or the Secretary of the Army at this time. However, Contunuing Study funds for(CP & E) in the amount of $150,000 are requested at this time. The Corps of Engineers has expressed a capability of this amount.

   Authorization for this project is included in HR3678 but is not included in the Senate version, S1739.

   We had hoped that Congress would have acted upon HR3678 or on similar legislation prior to these Hearings. However, that has not happened. We understand that legislation may yet be considered early this Spring.

   We urge every effort be made to further this project at this time. It now awaits authorization.

2. The Green Bay Levee and Drainage District #2,Iowa project, has run the gauntlet of eight years of study involving special biological studies, demonstration dredging projects, inter State and Federal Agreements, etc., and has received approval of the Board of Engineers for Rivers and Harbors. The project is included in HR3678 for authorization.

   Here again, we hoped for authorization prior to these Hearings. Since the date of our request for the honor of testifying before your Committee, we have learned that OMB and the Secretary of the Army have raised objections to the project, apparently on the grounds that a 500 year flood frequency protection as recommended by the Board of Engineers for Rivers and Harbors is not appropriate for Agricultural

Areas and question the proposed protection to the large chemical plant. This is our understanding and may or may not be completely factual.

The Drainage District has no serious objection to reverting to the design basis of the Survey Report of a 200 year flood frequency protection in lieu of the 500 year protection recommended by the Board of Engineers For Rivers and Harbors. No doubt, the lesser protection would result in enhancing the benefit/cost ratio. We understand that benefits were not taken for probable damages of chemical spills due to a levee failure.

The project is waiting authorization but may not have the endorsement of the Administration.

We respectfully request that this project be carefully reviewed in the light of its merits and the tremendous amount of study, time, compromises, cost and efforts expended over an eight year period.

3. The Muscatine Island Levee Drainage and Muscatine Louisa County Drainage District No. 13, Iowa, Levee Project has been returned to the District level for minor revisions and study. With these modifications the Project should be in line for authorization. Sufficient funds are on hand to complete the study.

4. The Mississippi River Coon Rapids Dam to the Mouth of the Ohio River; Illinois, Missouri and Iowa (Projects Review) Survey funding is included in the President's Budget in the amount of $1,012,000 for FY 1985. We urge your Honorable Committee to retain this amount in order that this Comprehensive Survey Report can be completed on schedule by 1987.

Although all of our Member Districts have received preliminary status reports under this Survey, final reports have only been issued to the Mississippi Fox River Drainage District #2, Missouri, and the three recommended Districts as set forth in this statement.

The Hydropower Interim Studies which is also a part of this study is of great interest to our Association. We see the possibility of Navigation Dam Hydroelectric power as a possible source of much needed cheaper energy to pump seepage and normal drainage water back into the River. In other words, use the energy of the River to return its own waters back to the River. Aside from the above, Electrical power generated by the normal flow of the River could possibly economically augment our Nation's Energy supply.

May we be forgiven for again calling to your attention our Association's views and concerns over some of the pending legislation or policies involving Water Resources Projects.

For example, we recognize the responsibility of the various Committees and the pressure brought thereon to establish "User Fees" on Navigation projects as well as cost sharing on flood control projects. Our chief concern is that Congress will be over zealous and in so doing will place a further burden on the "balance of trade" situation our Country faces. Lower cost water transportation is beneficial not only to Agriculture but directly and indirectly favorably effects industrial costs and thus the entire economy.

We are concerned that pending legislation may contain non-flexible cost sharing on flood control projects such as set-forth in HR3678 at 25% or the Senate Bill (S1739) at 35%. This could set a policy and make it very difficult for many local sponsors to participate. For example, in the South Quincy Drainage and Levee District, Illinois, the C.O.E.'s "Final Feasibility Study For Flood Damage Reduction, June 1982" contains only the historical non-Federal cost sharing and assurance provisions.

Upon the above basis, the South Quincy Drainage and Levee District looks very favorable upon the project. There is now concern over a potential 25% Non-Federal cost sharing requirement as set forth in the recommendations of the Board of Engineers For Rivers and Harbors, dated March 25, 1983.

The District comprises some 5,000 acres of Agricultural land including considerable industrial development. Even with the industrial development, a local or Non-Federal cost sharing provision of say 25%, estimated at $2,619,250.00, would weigh heavy upon 5,000 acres.

It would seem advisable that if cost sharing is inevitable, and we can understand the pressures and desires of the Administration and Congressional Committees, a flexible non-rigid approach is suggested. A case by case determination would seem reasonable.

Actually, we have serious reservations over the justification of a change in flood control policy over the Upper Mississippi River involving the Navigation System at this time for the simple reason that the Navigation system including the Locks and Dams, levees, and appurtenances are all a part of an integral system closely tied to human lives, recreation, the environment, and the economic vitality of the entire region. The Studies under way are merely upgrading the system.

As we have stated many times, we believe flood control on major rivers is a Federal responsibility and should be evaluated, designed and constructed on a regional basis.

We appreciate the courtesy of your Honorable Committee for allowing us to present this testimony.

SUBCOMMITTEE RECESS

Senator JOHNSTON. We will recess until 2 p.m. this afternoon.

[Whereupon, at 11:45 a.m. the committee recessed, to reconvene at 2 p.m.]

(AFTERNOON SESSION, 2 P.M., WEDNESDAY, APRIL 4, 1984)

NONDEPARTMENTAL WITNESSES

TEXAS WATER RESOURCE DEVELOPMENT PROJECTS

Chairman HATFIELD [presiding]. The subcommittee will please come to order.

Since we have a goodly number of witnesses today to be heard, I will urge the witnesses to submit the full text of their statement which will be incorporated in the record and then proceed to summarize or to highlight that testimony in oral remarks.

I am most pleased to welcome our most outstanding colleagues from Texas, Senator Tower and Congressman Jack Brooks from Texas, both with long leadership in the State of Texas and in the Congress. We are happy to have you here this afternoon if you would like to proceed.

Senator TOWER. Mr. Chairman, out of courtesy I would like to defer to our visitor from the other side of the Hill who is here to testify today. He is the dean of the Texas delegation in the Congress of the United States, and being a very young man, I always like to pay deference to the dean.

I see Senator Bentsen has arrived and if he will permit me, I will yield to Jack first.

Senator BENTSEN. Senator Bentsen will also yield to Mr. Brooks.

Chairman HATFIELD. I have never seen Senators yield to Congressmen before.

Senator BENTSEN. This one is a little different.

Chairman HATFIELD. Jack, you're on.

STATEMENT OF HON. JACK BROOKS, U.S. REPRESENTATIVE IN CONGRESS FROM TEXAS

Mr. BROOKS. Thank you.

Thank you very much, Mr. Chairman. I won't take but about 4 minutes.

I thank you for the opportunity to appear on behalf of the public works of the Ninth Congressional District. I am honored to be here with Senator Tower, my high school chum and longtime friend; and with my distinguished Senator and friend, Lloyd Bentsen. I feel like I am in good company.

Chairman HATFIELD. Who is also chairman of the Senate Campaign Committee which should not be overlooked. [Laughter.]

Mr. BROOKS. When you're not running for the Senate, and I am not. He has a good organization, Mr. Chairman. I have tried to work closely within my district, as they say.

FUNDING REQUEST

Well, I support funding for all items included in the budget proposal, including Taylors Bayou. They are all covered in my statement.

I request that two of these budgeted projects be funded to the full extent of the Corps of Engineers' capability. These are the Dickinson Bayou flood control study, $300,000; and the Pine Island Bayou flood control study, $250,000.

TRINITY RIVER AND TRIBUTARIES, LIBERTY CHANNEL, TEXAS

In addition, although the Trinity River and tributaries channel to Liberty, Tex., project is not in the budget, I support the Corps' capability of $1 million for dredging the Anahuac Channel and the channel to Liberty, Tex. This project, as well as the Pine Island Bayou project, are primarily in Congressman Charles Wilson's district, in Senator Bentsen's district, and in Senator Tower's district, but they do impact upon my district and I am pleased to support this effort.

CLEAR CREEK, TEX.

I am requesting that two authorized projects, not included in the budget for fiscal year 1985, be funded for initial construction purposes. The Clear Creek watershed is located south of the cities of Houston and Pasadena in Galveston County, which I represent, and Harris, Brazoria, and Fort Bend Counties bordering on Congressmen Mike Andrews and Ron Paul. A major flood problem exists from inadequate channel capacity to contain floods originating within the watershed. It is extensively developed, it contains dwellings and land of high value. The residents have already suffered tremendously from floodings. It is time for this project authorized in 1968 to proceed and I urge your subcommittee to appropriate $5 million to allow the Corps to begin work at the first reach of the channel beginning at the mouth of Clear Creek at Clear Lake to a point near Highway 3.

I also request that the Neches River saltwater barrier project be funded for $700,000.

WALLISVILLE SALTWATER BARRIER

It is anticipated that our Wallisville saltwater barrier which has been under litigation since 1973 will be ready for construction by the beginning of fiscal year 1985. The Corps of Engineers has issued its record of decision for the modified Wallisville Lake project and has found it to be economically justified, environmentally sound, in the public interest, publicly acceptable, technically implementable, and consistent with national policy and statutes. As you know, the modifications recommended in the postauthorization change report were authorized by Public Law 98-63 passed in July 1983. It is my hope that the injunction will be lifted and the amount of funding necessary to begin can be appropriated beginning with about a $7 million appropriation.

Mr. Chairman, again I appreciate your kind consideration. All of these Federal public works projects are critical to the economic development of my district with its many petrochemical plants and heavy industrial operations that are so vital to our country. Ports along the Texas gulf coast are an integral part of the economy of this Nation. These projects ensure the productivity and growth of that area and help to remove the ever-present threat of flooding and its tragic effects.

PREPARED STATEMENTS

Mr. Chairman, I would ask unanimous consent to include the statements from the entities in my district, including the cities of Beaumont, Clear Lake, Friendswood, Galveston, Groves, League City, Nederland, Port Arthur, and Texas City; and the counties of Chambers, Galveston, Harris, and Jefferson; the ports of Beaumont, Galveston, and Port Arthur; and the Chamber of Commerce of Port Arthur; the Beaumont Navigation District; Chambers-Liberty Counties Navigation District, Harris County Flood Control District; Brazoria County Drainage District No. 4; Clear Creek Drainage District; Galveston County Drainage District No. 2; Jefferson County Drainage Districts Nos. 3, 6, and 7; and D.P. Wheat, Jr. I would also ask unanimous consent to introduce the people who are here from that district in support of these statements and these projects.

Chairman HATFIELD. The statements will be included.

INTRODUCTION OF SUPPORTING WITNESSES

Mr. BROOKS. I introduce to you Mayor Bill Neild, of Beaumont; Councilman Bill Cox; Councilwoman Jan Jordan, the mother of two small children and an 8-month-old baby—the baby is not here—to be the youngest witness; and Councilman Paul Schrader and Doug Matthews from the city of Galveston; from the city of League City, the mayor, Joe Lamm; Councilman Kent Brown and his son Chuck, Councilman Frank DeBar, Jeff Niels, and Chuck Debades; from Galveston, Judge Holbrook, Commissioners Frank Carmona, Jerry Hopkins, Commissioner Billy Pegues, Mrs. Pegues, Sharon Kirkpatrick; from the county of Harris, Ralph Taper, Norman Floyd, Commissioner from Jefferson County, and Commissioner Ray Martin and Mrs. Martin; Commissioner Billy Hunter from Missouri District No. 4; from Clear Peak Creek Drainage District Chairman Dale Anna, Vice President Charlie Hooks; from Galveston Drainage District No. 1, Commissioner George Pearson; Drainage District 2, Marcus Juneau is back with us; from Harris County flood control, Jim Green; from Jefferson County District 6, Sam Smith, the president; Commissioner Josh Allen, Jiggs Allen, son Brian; Commissioner Pat Henderson; Ronny Flack and general manager; Drainage District 7, Jean Rachitaw; Duffy Adare, the biggest man we have got here; Junior and Colghren, Joe Liti, manager; Mr. Hogey.

I want to thank you very much for your help and appreciate your support.

Chairman HATFIELD. Thank you, Congressman Brooks. I welcome each one of your citizens here to the hearing.

[The statements follow:]

STATEMENT OF CONGRESSMAN JACK BROOKS OF TEXAS

Mr. Chairman, thank you for the opportunity to appear today to urge the subcommittee's favorable consideration of the public works projects for the Ninth Congressional District of Texas included in the fiscal year 1985 budget.

Mr. Chairman, I support funding those items included in the budget proposal and in the interest of time will submit a list of them with my statement rather than discuss each one individually.

In addition, I am requesting that two of these budgeted projects be funded to the full extent of the Corps of Engineers' capability. These are the Dickinson Bayou flood control study, $300,000; and the Pine Island Bayou flood control study, $250,000. The additional funds for Dickinson Bayou and Pine Island Bayou will advance study completion for each of these projects by 4 months and 7 months, respectively.

In addition, although the Trinity River and tributaries channel to Liberty project is not in the budget, I support the Corps' capability of $1 million for dredging the Anahuac Channel and the channel to Liberty. Mr. Chairman, this project as well as the Pine Island Bayou project are primarily in Congressman Charles Wilson's district. However, they do impact upon my district and I am pleased to support Congressman Wilson in his own personal efforts on behalf of these projects.

Also, Mr. Chairman, I am requesting that two authorized projects, not included in the budget for fiscal year 1985, be funded for initial construction purposes. The Clear Creek watershed is located south of the cities of Houston and Pasadena and lies within portions of Galveston County, which I represent, and Harris, Brazoria, and Fort Bend Counties, bordering on Congressmen Mike Andrews and Ron Paul. A major flood problem exists from inadequate channel capacity to contain floods originating within the watershed. The watershed is extensively developed and contains dwellings and land of high value. The residents in that area have already suffered tremendously from floodings. It is time for this project, which was authorized in 1968, to proceed to construction and I urge your subcommittee to appropriate $5 million to allow the Corps to begin work at the first reach of the channel beginning at the mouth of Clear Creek at Clear Lake to a point near Highway 3.

I also request that the Neches River saltwater barrier project be funded for $700,000. This amount will allow the Corps of Engineers to begin construction on a mile-long access road from Interstate 10 to the site of the barrier itself. I strongly support both of these projects, Mr. Chairman, and, again, urge your subcommittee's favorable consideration of them.

Mr. Chairman, it is anticipated our Wallisville saltwater barrier project, which has been under litigation since 1973, will be ready for construction by the beginning of fiscal year 1985. The Corps of Engineers has issued its record of decision for the modified Wallisville Lake project and has found it to be economically justified, environmentally sound, in the public interest, publicly acceptable, technically implementable, and consistent with national policy and statutes. As you know, the modifications recommended in the postauthorization change report, as supplemented, were authorized by Public Law 98-63, dated July 30, 1983. It is my hope that the injunction will be lifted soon and that the amount of funding necessary to begin construction can be appropriated through your subcommittee's legislation. A $7 million appropriation would go a long way toward expediting the long-overdue construction required. It is my understanding that the estimated cost of the modified project, at October 1983 price levels, is $52,124,000.

Mr. Chairman, again I appreciate your kind consideration. All of these Federal public works projects are critical to the economic development of my district with its many petrochemical plants and heavy industrial operations that are so vital to our country. Ports along the Texas gulf coast are an integral part of the economy of this Nation. These projects insure the productivity and growth of that area and help to remove the ever-present threat of flooding and its tragic effects.

I have with me today a number of persons vitally concerned with these projects. They are here to support these statements and to answer any questions the subcommittee may have. I would like to introduce them at this time.

Beaumont: Mayor William Neild and Councilman Bill Cox. Friendswood: Councilwoman Jan Jordan and Councilman Paul Schrader. Galveston: Assistant City Manager Doug Matthews. League City: Mayor Joe Lamm, Councilman Kent Brown and son, Chuck, Councilman Frank Ybarra, Councilman Jeff Mallios, and Councilman Chester Davis. Port Arthur: Councilman Arthur Guidry. Galveston County: Judge Ray Holbrook, Commissioner Frank Carmona and Mrs. Carmona, Commissioner Jerry Hopkins, Commissioner Billy Jack Pegues and Mrs. Pegues, and Sharon Kirkpatrick. Jefferson County: Commissioner Norman Troy.

Brazoria County Drainage District No. 4: Commissioner Roy F. Martin and Mrs. Martin, and Commissioner Billy Hunter and Mrs. Hunter. Chambers-Liberty Counties Navigation District: Chairman Maurice Locke. Clear Creek Drainage District: Chairman Dale G. Anna and Secretary/Treasurer Carl L. Smith. Galveston County Drainage District No. 1: Commissioner George Pearson, Commissioner A.A. Autry, and Commissioner Dean Britton. Harris County Flood Control District: Director Jim Green. Jefferson County Drainage District No. 6: President Sam O. Smith, Vice President/Secretary Robert C. Horn and Mrs. Horn, Commissioner Joshua Allen, Mrs. Allen and son, Brian, Commissioner Pat Henderson, General Manager Ronnie Platt, and General Counsel Thad Hartfield. Jefferson County Drainage District No. 7: Chairman Eugene Rasheta, Commissioner M.J. Adair, Commissioner Julian B. Coghill, Jr., Commissioner Glenn Decuir, and Commissioner Joe Lyday and Mrs. Lyday.

I also submit for the consideration of the subcommittee statements in support of these projects from the following:

Cities of: Beaumont, Clear Lake, Friendship, Galveston, Groves, League City, Nederland, Port Arthur, and Texas City. Counties of: Chambers, Galveston, Harris, and Jefferson. Ports of: Beaumont, Galveston, and Port Arthur. Chambers of Commerce of: Port Arthur.

Beaumont Navigation District, Chambers-Liberty Counties Navigation District, Harris County Flood Control District, Brazoria County Drainage District No. 4, Clear Creek Drainage District, Galveston County Drainage District No. 2, Jefferson County Drainage Districts Nos. 3, 6, and 7, Lower Neches Valley Authority, and D.P. Wheat, Jr.

STATEMENT OF RAY HOLBROOK, COUNTY JUDGE, GALVESTON, TEX.

Dear Senator Hatfield and members of the subcommittee, Galveston County has been the local sponsor with the U.S. Corps of Engineers for the construction of various flood control projects in Galveston County since the first seawall was started in Galveston shortly after the 1900 hurricane. The Galveston seawall has now been extended in length to approximately 10 miles protecting the most populated part of the city of Galveston.

In 1962, some 14 years after the first local bond issue was passed, construction began on the seawall protecting the cities of Texas City and La Marque from the ravages of hurricanes and high tides of Galveston Bay. In addition, flood control projects have been initiated to prevent flooding along Highland Bayou in the cities of Hitchcock, Santa Fe, and La Marque, a project on which construction started in 1974, and along Clear Creek in the cities of League City and Friendswood in cooperation with Harris County and Brazoria County, although no construction has yet begun. Galveston County is also the local sponsor for a restudy of the flooding problems on Dickinson Bayou, a bayou which flooded 1,000 homes in 1979.

We appear before this honorable committee to urge your support for appropriations for these projects which are not yet complete in Galveston County. We are specifically requesting appropriations for construction on Clear Creek, which is now ready for construction.

DICKINSON BAYOU

The Galveston County Commissioners Court is urging this honorable committee to approve $225,000 for the Corps of Engineers to continue the study of flood control measures on Dickinson Bayou. This is extremely important to Galveston County, inasmuch as over 1,000 homes were flooded along Dickinson Bayou during tropical storm Claudette in July 1979 because of rains in the watershed area, from 20 to 40 inches over a 24-hour period. This caused between $40 million and $50 million in damages along Dickinson Bayou, and Galveston County is anxious to act as a local sponsor to relieve the flooding conditions. A study was done in the mid-1970's by the Corps of Engineers that found an inadequate benefit-to-cost ratio. However, we believe that extensive construction and development and the possibility of another devastating flood will certainly change the benefits to be derived from flood control measures.

We are respectfully requesting that the $225,000 noted above, which is included in the administration's budget, be approved so the Corps of Engineers can complete this study and we can finally determine if a flood control project on Dickinson Bayou has a favorable benefit-to-cost ratio. We hope you will agree that this study should be completed and we sincerely hope you will favorably consider our request.

CLEAR CREEK FLOOD CONTROL PROJECT

The Galveston County Commissioners Court respectfully urges the honorable committee to authorize $5 million in construction funds and approve a new construction start for the Clear Creek flood control project. These funds are not included in the administration's budget, but we know that the U.S. Corps of Engineers will be ready to let a contract for the first phase of this project in the first or second quarter of 1985.

It is extremely important that the Clear Creek flood control project begin construction in fiscal year 1985. After approximately 12 years of planning, the Corps of Engineers made final engineering decisions on this project in 1983 and has been doing detailed engineering design for the first phase which is from Clear Lake to just past Highway 3. This project is designed to provide flood relief for over 500,000 people in the Clear Creek watershed in Galveston, Harris, and Brazoria Counties. It was also designed in such a way as to protect the sensitive environment of Clear Creek, and this decision received overwhelming public support in a January 1982 public hearing. The three local sponsors—Galveston County, Harris County, and Brazoria County Drainage District No. 4—support the Corps of Engineers design which will accommodate a 10-year flood with the remainder of the 100-year flood plain to be protected by flood plain management.

In 1979, over 2,000 homes in Friendswood and League City along Clear Creek were flooded twice—in July from tropical storm Claudette and again in September. Several thousand homes were also flooded in Brazoria and Harris Counties. Losses from flooding in these three counties from the 1979 floods are well over $200 million. People are desperate to do something—almost anything—on Clear Creek, and the Corps of Engineers is trying to expedite this project.

Inasmuch as the Clear Creek flood control project has been in the study and design stage for almost 15 years (authorized in 1968), it is most urgent that construction start as soon as possible. Although the administration is not recommending this new construction start, this study has been given a high priority by the Corps of Engineers and over $1.5 million has been spent. It would be disastrous to the people along Clear Creek if this project were shelved after all of the time, effort, and money spent in detailed studies. We sincerely hope you will give every consideration to approving a new construction start on Clear Creek and authorize the Corps of Engineers to spend approximately $5 million in construction funds for the first phase of the project.

Thank you for your consideration of these requests and for your time in allowing us to be present at these hearings. We stand ready to assist you in anyway and to furnish any additional information you may require.

STATEMENT OF WALTER J. CRAWFORD, CHAIRMAN, BEAUMONT NAVIGATION DISTRICT

The Beaumont Navigation District of Jefferson County, Tex., is the local sponsor of the Sabine-Neches Waterway as authorized by Congress.

The Sabine-Neches Waterway is a federally maintained navigation project extending from the Gulf of Mexico, through a jettied entrance at the mouth of Sabine Pass, inland to the deepwater ports of Port Arthur, Beaumont, and Orange, Tex., a total distance of approximately 84 miles. The project includes deep-draft channels of the following dimensions: 42 feet deep and 800 feet wide across the Sabine Bank in the Gulf of Mexico; 40 feet deep and a varying width of 800 feet to 500 feet through the jetty channel; a depth of 40 feet and a width of 500 feet from the jetty channel to the turning basins at Port Arthur; a 40-foot depth and a 400-foot width from Port Arthur via the Sabine-Neches Canal and the Neches River to the Port of Beaumont; a 30-foot depth and a 200-foot width from mouth of Neches River upstream through the Sabine River to the Port of Orange.

In addition to the above dry cargo ports, Mobile Oil Corp., Texaco, Inc., Gulf Oil Co.-U.S., American Petrofina Co. of Texas, and Union Oil Co. of California have located their major refineries along this ship channel. These five refineries have a total rated processing capacity of 1.3 million barrels of crude oil per day. This is approximately 12 percent of the Nation's refining capacity. A great majority of this crude oil is imported by tankers through this waterway and the ports and energy-related industries along this channel have billions of dollars invested in wharves, docks, and plant installations. A recent survey reveals that an energy-related industry expansion and replacement program of substantial size will be underway within the next year and additional expansion has been planned for the future.

In addition to providing crude oil to the local refineries, Sun Marine Terminals also furnishes the Texoma pipeline with considerable oil for this facility. This pipeline originates on our ship channel above Port Arthur, Tex., and terminates at Cushing, Okla., at which point crude oil is carried by connecting pipelines to the Midwest, the ultimate capacity of the Texoma line being 600,000 barrels per day. The Department of Energy has invested in excess of $35 million in Sunoco's facilities, not including the cost of a pipeline to the Hackberry Strategic Reserve salt dome oil storage terminal, nor does it include the development of the Big Hill storage terminal, the construction of which is underway. The majority of this commodity is foreign imported crude oil and the handling requires the use of many large tankers which further congest this already extensively used waterway.

All of the foregoing development is largely due to the existence of the Sabine-Neches Waterway, our area's lifeline to the world for its exports and imports.

This extensive and expanding complex comprises a critical basic energy-related industry that is absolutely vital to the Nation's economic and energy needs. Their diminution for any reason would have a deleterious effect nationally as well as regionally.

The Beaumont Navigation District, as one of the sponsors of the Taylors Bayou drainage and flood control project, is responsible for the operation of the navigation and saltwater barrier gates near the mouth of Taylors Bayou.

Over a 40-year period we have been in a position to observe the numerous artificial changes in the area that have adversely affected drainage of this stream.

The first set of existing gates were installed in 1937 and functioned as saltwater barriers, not as floodgates. Later, the J. D. Murphee Wildlife Management Area was created by constructing a system of levees along Taylors Bayou and the intracoastal canal restricting the natural course of floodwaters across the wetlands into the intracoastal and then to the gulf. Then in 1972, the Rhodair Gulley, Lakeside, and Alligator Bayou pump stations of the Port Arthur hurricane protection system were installed. These pumps have a combined capacity of over 2 million gallons per minute and discharge into the lower reach of Taylors Bayou just above and below the saltwater gates. These pumps operate during periods of flooding, raising the level of the bayou which backs water up into homes and streets of Beaumont. State Highway 73 running from Port Arthur west to Winnie is yet another obstruction to the traditional flow of water from the developed section of Beaumont toward the gulf. During a rain of any magnitude, a 1- to 3-foot differential builds up on the north side of this highway, holding water on the developed areas of north Jefferson County.

Construction of phase I is well underway. Dredging the outfall canal has been completed; a contract for the construction of a new saltwater barrier been awarded; and work should begin on a pipeline relocation contract in the immediate future. Therefore, it is imperative that sufficient funds be provided to continue this urgently needed work before more costly damages are inflicted on the homeowners and the businesses of our community.

As one of the sponsoring agencies, Beaumont Navigation District stands ready to meet its commitments to furnish its share of the local assurances required.

The district, representing the people and industries of this district, and supported by our Congressman, the honorable Jack Brooks, respectfully request that $4 million be included in the fiscal year 1985 budget in order that this highly important work be continued.

The Corps of Engineers found that in 1982 there was in excess of 54 million tons of dry and liquid cargo shipping on this waterway. Shipping of this magnitude necessarily involves the use of a great many vessels which, of course, creates congestion on the waterway. To compound the problem, the present size of the grain ships, oil tankers, and other cargo ships using this waterway are such that an even deeper and wider channel is badly needed.

Recent studies by the Corps of Engineers and complaints from the shipping industry reflect that there is serious siltation and shoaling in the gulf entrance channel at Sabine, with extensive shoaling along several reaches of the inland channels. They find that these conditions will rapidly become worse and, if not corrected, eventually the channel could be closed to deep-sea navigation.

Correcting these conditions will decrease chances of collisions and groundings of the many hundreds of vessels carrying crude oil and refined products. Such occurences, as stated by the Corps of Engineers in their environmental impact report, "would result in adverse environmental impact and public health hazards." Failure to maintain the channel would result in severe adverse economic effects on the project area, the State, and the Nation. Effects would include loss of billions of dollars worth of facilities adjacent to the channel, loss of employment for thousands of people, and disruption of the manufacture and transportation of a significant portion of the Nation's fossil fuel supply.

The Corps of Engineers' breakdown of the $7,520,000 included in the proposed budget for fiscal year 1985 is as follows: $2,000,000 for dredging the Port Arthur turning basins and junction area: $2,930,000 for dredging the outbar and Sabine bank channels; $1,582,000 for dredging the Sabine pass channel; and $1,008,000 for administration, engineering, surveys, etc.

As the sponsoring agency, Beaumont Navigation District stands ready to provide all needed disposal land areas, rights-of-way, relocations, and confining structures for this project.

The district, representing the above-mentioned many ports, refineries, grain elevators, and other shippers using this waterway, supported by our Congressman, the honorable Jack Brooks, respectfully request your favorable consideration for the inclusion of $7,520,000 in the fiscal year 1985 budget in order that this badly needed work can be accomplished.

STATEMENT OF THE CHAMBERS-LIBERTY COUNTIES NAVIGATION DISTRICT, TEXAS

This statement is presented by the undersigned, the duly designated Commissioners of the Chambers-Liberty Counties Navigation District, (a Water Conservation District created pursuant to the laws of the State of Texas), representing the 16,000 citizens of Chambers and Liberty Counties, Texas, who reside within the boundaries of said District.

I. The Wallisville Reservoir and Salt Water Barrier is a project in the lower part of the Trinity River, Texas, which was authorized by the River and Harbor Act of 1962 (Public Law 87-875) as a separate and self-contained project. It was designed as a multiple purpose reservoir for salinity control, navigation, water supply, fish and wildlife conservation, and recreation and is of primary importance to the lower Trinity River Basin, the City of Houston and its metropolitan area with a population concentration of more than two million people. Sponsorship of this project was initiated by this District for the sole purpose of preventing the intrusion of salt water into the lower river. The Trinity River Authority and the City of Houston later joined with this District as the local sponsors. These local interests have obligated themselves to pay 16% of the total cost of this project as their contribution to the cost of salinity control, water supply and recreation.

For over twenty years, this District has advocated the construction of a Salt Water Barrier, with a barge lock and a fresh water reservoir, near the mouth of the Trinity River. This River supplies water to four canal systems for the irrigation of approximately 60,000 acres of rice lands in Liberty and Chambers Counties with the resulting crop being valued at approximately $20 million. Historically, these operations have been plagued with salt water intrusion from Trinity and Galveston Bays during periods of low flow in the river. The obvious solution to this salt water intrusion problem is to construct a barrier across the river near its mouth. In planning such a salt water barrier across a navigable river, it was necessary to design a project which included a navigation lock to permit the passage of barges and other vessels which ply the Trinity River below Liberty.

For several years, public agencies and governmental bodies participated in the planning and design of this project so that it would enhance the environment and improve the economic and esthetic standards in the lower Trinity River Basin. The first public hearings on the proposed project were held in 1960 and because of certain objections concerning the location of a proposed wildlife refuge, the area of the project was reduced in size to satisfy those objections. The present reservoir site was approved and the project authorized by Congress in 1962. The first planning money was made available in Fiscal Year 1964 and the first construction funds were appropriated in 1966. During the 10-year period subsequent to authorization, this project was delayed by an administrative freeze on spending for reasons of national emergency. Then funds were released and the project reached the point where it was approximately 72% complete before construction was halted by the temporary injunction which is presently in force.

Suit was filed in the U. S. District Court at Houston, Texas, on September 13, 1971, by the Sierra Club and others to enjoin Wallisville Dam and the Trinity River Project. By order of February 26, 1973, the U. S. District Court granted the Sierra Club's Motion for Summary Judgment and enjoined construction on both projects until the Corps complied with the National Environmental Policy Act by filing proper Environmental Impact Statements.

The Fifth Circuit Court of Appeals reversed the District Court on August 26, 1974, with the following holdings:

1. Wallisville Dam and the Trinity River Project are separate projects.

2. The District Court erred in requiring guidelines for the Trinity River Project EIS, which was yet to be prepared and filed.

3. The Wallisville Dam EIS complied with the National Environmental Policy Act, except in its disclosures respecting population and industrial expansion and in its evaluations of certain other information and supporting data.

The injunction as to the Wallisville Dam was continued, pending review of a Supplemental EIS dealing with population and industrial expansion and with the indicated evaluations. The injunction as to the Trinity River Project was continued pending preparation, filing and review of the EIS, but in the meantime, planning and design could continue.

The Supplemental EIS for Wallisville Dam and the Original EIS for the Trinity River Project are now being prepared.

While this matter has been in Court, Congress has continued its support of the two projects. The Fifth Circuit recognized this by stating in its opinion:

> "The course of the Congressional hearings discloses that body continues to regard Wallisville as a project separate from the Trinity River Project. It also demonstrates that, with full knowledge of the detriments and benefits of the project, the state of completion, the outstanding injunction, and of the objections to further construction, Congress thought the Wallisville Project should receive contingent funding despite the Corps' withdrawal of its request therefor. While this Congressional action is not a considered, debated determination that the project should proceed notwithstanding environmental objections, cf. Environmental Defense Funds, Inc. v. Corps of Engineers, 492, F.2d 1123, p. 1141, 5 Cir., 1974, it does indicate that Congress wished to expedite the construction of this project, if and when it becomes possible, and to do so regardless of the outcome of litigation related to Trinity River Construction."

In 1971, the Trinity River Authority of Texas, under a contract with the City of Houston, completed the construction of a fresh water supply reservoir (Lake Livingston) at river mile 128 which covers approximately 90,000 acres of land and impounds 1,750,000 acre feet of water. The City of Houston owns 70% of the yield from this reservoir which was constructed at a cost of more than $74 million. The City of Houston has spent, or has obligated itself to spend, an additional sum in excess of $100 milllion for the construction of a system for the distribution of water from this reservoir which is to be released into the Trinity River and diverted at a point in the upper reaches of the Wallisville Reservoir. The Livingston Reservoir was designed to operate in conjunction with the Wallisville Project for the purpose of providing a practical and economical means of distributing this fresh water into the Houston industrial complex. This investment of approximately $200 million of non-Federal funds will be in serious jeopardy if the Wallisville Project is not completed as now scheduled.

Completion of Wallisville Dam is a pressing, immediate need in order to complete the Lake Livingston-Lake Wallisville System. This system will provide the Houston-Galveston Bay area with surface water as an alternative to the present pumping of underground water and is intended to relieve the continuing subsidence of the area caused by such pumping. This subsidence is an ecological disaster which must be remedied with all possible speed.

We urge the Congress to continue its strong support for this project by directing the Corps of Engineers to retain the $3.6 million which has been previously appropriated.

STATEMENT OF MAURICE LOCKE, CHAMBERS-LIBERTY COUNTIES NAVIGATION DISTRICT, TEXAS

Mr. Chairman and Committee Members, my name is Maurice Locke. I serve on the Board of Commissioners of the Chambers-Liberty Counties Navigation District. The Port of Liberty was created by the Chambers-Liberty Counties Navigation District in conjunction with the City of Liberty. I am testifying today as spokesman for the Chambers-LIberty Counties Navigation District and the lower Trinity River in general.

Our Port of Liberty is located at river mile 45 and is only useable during period of extremely high river rises. On March 19th, Mississippi Chemical was able to receive a barge load of liquid fertilizer from Yazoo City, Mississippi. This is the first barge traffic to the Port of Liberty since last year. Mississippi Chemical will barge to the Port of Liberty on a regular basis a conservatively estimated 80,000 to 100,000 tons per year. We also have a number of companies who want to barge building materials in and out of the Port of Liberty on a regular basis.

Maintenance dredging of the existing authorized six foot run-of-the-river channel has been complicated in recent years by the lack of dredge spoil easements. The local sponsor for this maintenance dredging, the Chambers-Liberty Counties Navigation District, is currently making an unprecedented effort, including the hiring of an outside consultant firm, to obtain these easements. In addition to this firm, Trinity River landowner, former Governor of Texas and U.S. Senator, Price Daniel is an active supporter of this project and is assisting us in securing these easements. We will have completed easement acquisition well in advance of the October 1 start of the federal fiscal year.

Our biggest current problem is that no appropriations have been included in FY 1985 budget for dredging the lower Trinity because of past easement problems. At the same time we have been advised that the Galveston District of the Corps has a $1 million capability to perform this most needed work.

Being unable to successfully navigate the Lower Trinity has contributed to the closure of several Port of Liberty industries, one of which employed 800 persons. We have been unsuccessful in attracting new industries that have made serious inquiries about locating in the Port area due to the lack of dependable navigation. This has also contributed to several negative economic factors:

a twenty percent decline in Liberty's population, an extremely high unemployment rate,

heavy loss of tax revenue in excess of one million dollars.

We strongly request that you direct the Corps to reroute money in house for maintenance dredging if it is available. If it is not, we request a straight line item appropriation to the maximum extent of the Corps capability.

While maintenance dredging of the lower Trinity will have a positive effect on the economy of the Liberty area, the total and permanent solution to this problem is development of the Lower Trinity Multiple-purpose Channel component of the Corps' For the first time in over 20 years, Trinity Project study funds have not been included for FY 1985. We have been advised that the Fort Worth District of the Corps, has the capability to beneficially expend as much as $350,000 for this purpose. Because of the tremendous long-term significance of a Lower Trinity Multiple-purpose Channel to the citizens of our area, we respectfully request you restore funding in the full amount of the Corps' capability.

We continue to support the Wallisville Project and hope to see it under construction at the earliest possible date. Thanks to the effort of this committee, progress has been made and a solution is near.

Thank you for your attention.

STATEMENT OF JAMES B. GREEN, DIRECTOR, HARRIS COUNTY (TEX.) FLOOD CONTROL DISTRICT

Once again I come before your Committee in the form of these written remarks to implore you and the honorable members of the Committee to consider, earnestly and favorably, continuation of the U.S. Army Corps of Engineers Clear Creek, Texas Flood Control Project.

I am James B. Green, Director of the Harris County Flood Control District, a political subdivision of the State of Texas, created by the State Legislature in 1937 after a series of disasterous floods had ravaged our area, threatening life and property.

It was as a result of continued flooding threat in Harris County that the U. S. Army Corps of Engineers in the 1930's undertook a major project to construct the Addicks and Barker Dams reservoir system in the western portion of Harris County, a system that still provides major protection to our area.

Mr. Chairman and Committee members, I beseech you to recommend continuation of the Clear Creek, Texas project to insure that this vital project will become a reality and provide the needed protection for lives and property in one of the fastest growing areas of the United States.

I request this on behalf of Harris County Judge Jon Lindsay and the other members of Commissioners Court, who have supported this project since its inception in 1966, both by resolution and by their active participation. Without their encouragement and help, the Harris County Flood Control District would not have been able to carry out its own maintenance and improvement efforts in the watershed while it waited for this Corps project to begin.

As you and most of your Committee may know, Harris County is located on the flat coastal plains of our State in an area subject to heavy and intense annual rainfall and the annual threat of hurricanes and tropical storms. The widespread and substantial losses experienced when we were ravaged by hurricane Alicia in August of last year, followed by devestating, torrential rains the very next month, underscore the absolutely essential need for this project. Indeed, had it already been completed, I am sure the Federal Government insurance program losses and the local damages within the watershed could have been reduced significantly.

This area is, in my professional opinion, one of the absolutely most difficult areas to drain and protect from flooding in the United States. This is borne out by the fact that in 1979, for instance, the Houston metropolitan area accounted for an estimated 43 percent of all the claims paid by the National Flood Insurance Program that year.

Mr. Chairman and honorable members of the Committee, I believe that each and every Federal dollar spent on flood control projects in our area will be paid back many times over in just the cost of Federal insurance and other aid we are sustaining now.

Over a period of years, we have seen the truth of this wisdom borne out by looking back at the costs we have sustained in our area as a result of flooding and comparing those costs to what it would take to improve our channels adequately.

In 1980, The Houston Post estimated it would take three billion dollars to carry out all the work needed on our drainage systems. A local university professor estimated the damages we sustained from the effects of just one tropical storm in 1979 totaled or exceeded that amount.

Mister Chairman and members of the Committee, we have waited long and with much anticipation for the Clear Creek project to get underway. If every person who has sustained damages to their homes and property as a result of flooding along this waterway could be here today, I do not know where we could find a room large enough to hold the meeting.

In December of 1981, the Corps of Engineers completed their draft of the General Design Memorandum for this project. We looked at this as a milestone in providing cost-effective flood protection for the residents of our County and Galveston County to the south. Now a request for funding of the advanced engineering and design work by the Corps is before your subcommittee once again. I ask you on behalf of all the citizens of our area to act favorably upon this request.

The Clear Creek Watershed drains approximately 260 square miles of flat, coastal plain which has a maximum elevation of approximately 75 feet. Clear Creek and its 17 tributaries drain into Clear Lake and from there into Galveston Bay which is recognized as the largest and most important (economically and ecologically) bay system along the Texas Gulf Coast.

This is a rapidly growing urban area which includes the site of the National Aeronautics and Space Administration Johnson Space Center, a number of local branches of national aerospace corporations and contractors, the homes of the technical and professional prople who staff these facilities, and a portion of the spillover of the petrochemical oriented businesses that line the Houston Ship Channel.

Mr. Chairman, let me reiterate the Corps statement on Flood Damage Reduction contained in their General Design Memorandum draft:

> "Flooding is a serious problem in the Clear Creek Watershed. Throughout the watershed, Clear Creek meanders and has a small channel capacity relative to the areas drained; consequently, flooding is experienced at frequent intervals throughout the area. As the area continues to be urbanized, the flooding increases in intensity and frequency."
>
> "The area's vulnerability to tropical storms and hurricanes is another factor that demands flood control needs. This widespread flooding that accompanied tropical storm "Claudette" in July 1979 emphasized the seriousness of this situation. This storm, which caused in excess of $227.5 million in total damages, is regarded as the worst in the area's history. Within the Clear Creek watershed, over 5,000 structures were flooded and the total residential and commercial damages exceeded $90 million. Major floods in 1973 and September 1979 also caused substantial flooding and economic loss along Clear Creek."

Clearly, the Corps of Engineers has identified the need to reduce the flood damages now being sustained in the Clear Creek Watershed on a recurring basis.

Much time and effort has gone into the Federally funded work the Corps of Engineers has already done. I realize the amount requested for their advanced engineering work is not that substantial, relatively speaking, but let me assure you that the completion of their work will have an immensely substantial benefit to our community, our State and our Nation.

Mr. Chairman and honorable members of the Committee, these Federal dollars spent today will save many more Federal dollars in years to come.

RESOLUTION OF BRAZORIA COUNTY DRAINAGE DISTRICT NO. 4, TEXAS

The Commissioners of Brazoria County Drainage District Number 4 in a special meeting held on March 20, 1984, upon motion duly made, seconded and unanimously passed, adopted the following resolution:

WHEREAS, the Clear Creek Flood Control Project is a project which is under the jurisdiction of the United States government, and

WHEREAS, the various committees of both the House of Representatives and the Senate of the United States are now working on the fiscal year 1985 budget, and

WHEREAS, the Clear Creek Flood Control Project needs to have funds in order that the Corps of Engineers can continue with this very necessary and vital project, and

WHEREAS, Brazoria County Drainage District Number 4 is one of the local sponsors of said project, and

WHEREAS, the Corps of Engineers has been working on this project at least since 1966 when the initial preliminary studies for Clear Creek Flood Control improvements were completed, and

WHEREAS, the president has not included in the budget submitted to Congress for fiscal year 1985 an amount of money for engineering, and

WHEREAS, it is necessary for additional moneys to be appropriated by Congress for new construction starts on this project, and

WHEREAS, the Corps of Engineers and the various local sponsors along Clear Creek have been working on this project for the last seventeen (17) years, and

WHEREAS, a ten year frequency flood plan has been worked out by the Corps of Engineers, which plan has been accepted by all of the local sponsors in the Clear Creek watershed, and

WHEREAS, it is of utmost urgency that the project be completed, and

WHEREAS, many homeowners and business people in the Clear Creek watershed suffered financial losses in the millions of dollars in the floods of July and September, 1979, and

WHEREAS, the local sponsors of the project are unable to proceed until the Federal government proceeds,

NOW THEREFORE, BE IT RESOLVED, that the Commissioners of Brazoria County Drainage District Number 4 unanimously request the Congress of the United States to appropriate funds for the commencement of this project.

STATEMENT OF DALE G. ANNA, PRESIDENT, CLEAR CREEK (TEX.) DRAINAGE DISTRICT

The attached resolution of the Clear Creek Drainage District of Galveston County supports a Corps of Engineers flood control project for our area that has been under development since 1968. During the past fifteen years, the Clear Creek, Texas, Project has undergone a series of public hearings and design modifications in an effort to satisfy the environmentalist segment of the public while providing a large enough reduction in the size of the flood plain to keep the water out of our houses during commonly encountered storms. At long last, we have a project that has successfully passed public review via the hearing process, has the support of all local sponsors and governmental entities, was endorsed by the Texas Legislature, and was approved by the Corps of Engineers District Office in Galveston and their Southwest Division Office in Dallas.

Development of the land in the Clear Creek Watershed and subsidence have caused the channel of Clear Creek to become grossly inadequate to handle the rain water runoff from storms that are very common along this section of the gulf coast, and which did not previously result in severe flooding. The channel corrections needed are beyond the financial capabilities of local government and require the extensive resources that the Corps of Engineers possesses. Our citizens know that the project will not protect our homes from all storms, but the design to contain runoff from a ten-year frequency storm is such a substantial improvement that peoples' lives will be markedly less stressful.

We appeal to you to support funding the construction of the Corps of Engineers Clear Creek, Texas, Project in the FY-1985 Budget. We are in dire need of the flood relief it will provide. It is not a a new project -- it was first authorized by the United States Congress in 1968. We have been waiting a long, long time.

RESOLUTION NO. 84-2

A RESOLUTION ENDORSING THE U. S. ARMY CORPS OF ENGINEER'S CLEAR CREEK FLOOD CONTROL PROJECT, CLEAR CREEK, TEXAS: AND URGING THE UNITED STATES CONGRESS TO FUND CONSTRUCTION OF THE PROJECT IN THE FY-84 BUDGET.

WHEREAS, the Clear Creek Watershed includes portions of Galveston County as well as parts of Harris County, and Fort Bend County, and

WHEREAS, a serious flood problem exists in the Clear Creek Watershed where existing residential and commercial areas are subject to extensive damages from rising waters in Clear Creek and its tributaries, and

WHEREAS the Clear Creek Drainage District is the agency responsible for flood control in those portions of Clear Creek and its tributaries within Friendswood, Texas, and

WHEREAS, the taxpayers of the District made a substantial committment in 1982 to the concept of self-help by voting a 180% increase in taxes for flood control, and,

WHEREAS, in spite of the increased taxes, the amount by which the flood hazard in the District can be reduced without a major project to increase the flow capacity of Clear Creek is severely limited, and

WHEREAS, the scope of the work required to achieve the necessary improvements on Clear Creek requires the extensive technical/management resources that the Corps of Engineers can provide, and

WHEREAS, the cost of the improvements needed on Clear Creek far exceeds the financial capabilities of local entities, and

WHEREAS, the benefits of the Corps of Engineers Clear Creek Project would include substantial reductions in claims against the National Flood Insurance Program, and

WHEREAS, in the Clear Creek Drainage District in July 1979, 1600 of 3000 homes were flooded with coincident economic losses exceeding $38,000,000; and

WHEREAS, in the Clear Creek Drainage District in September 1979, 500 of these homes were again flooded; and

WHEREAS, in the Clear Creek Drainage District in January 1980, 75 of these homes were again flooded, and

WHEREAS, the residents in the District continue to experience economic loss as a result of unnecessarily frequent flooding, and

WHEREAS, the residents of the District continually suffer extreme mental anguish because of the frequent threat of flooding, as well as the flooding itself, and

WHEREAS, the Clear Creek Drainage District, within the limits of its resources, and with the cooperation of other local governmental agencies, as well as individual citizens who have donated their time and labor, has been clearing debris and executing structural improvement projects in the creeks to increase their capacity, and

WHEREAS, the United States Congress in 1968 authorized the U. S. Army Corps of Engineers to design a flood control project which would provide a significant measure of protection from recurring flooding problems in the Clear Creek Watershed, and

WHEREAS, the study has been completed, and a consensus has been achieved by all local sponsors and entities and endorsed by the 67th Texas Legislature, and

WHEREAS, the project has been approved by the U. S. Army Corps District in Galveston and the Corps Southwest Division, and

WHEREAS, the First Feature Design is in progress and construction bidding is scheduled for March 1984, and

WHEREAS, further delays will significantly increase the cost of the project as well as the probability of additional flooding; now, therefore,

BE IT RESOLVED BY THE BOARD OF SUPERVISORS OF THE CLEAR CREEK DRAINAGE DISTRICT OF GALVESTON COUNTY:

THAT the District reendorse the U. S. Army Corps of Engineers Clear Creek Flood Control Project, and

THAT the District urge the Congress of the United States to recognize that the Corps of Engineers Clear Creek Project is not a mere convenience item, but is absolutely necessary in order to restore the quality of life of thousands of people to a reasonable condition that they have every right to expect, and

THAT the District urge the Congress of the United States to approve the funds necessary for construction of the project in the FY-84 budget, and

THAT the District urge the Congress to take whatever additional action is necessary to expedite the project and thereby reduce the emotional, physical, and economic suffering due to flooding, and

THAT the District Administrative Assistant forward official copies of this Resolution to the President of the United States, to the Speaker of the House of Representatives of the United States, to the President of the Senate of the United States Congress and to all members of the Texas Delegation to the Congress, with the request that this Resolution be officially entered into the Congressional Record.

PASSED, APPROVED, AND ADOPTED THIS 13th DAY OF MARCH, 1984.

NINTH DISTRICT, TEXAS, PROJECTS—FISCAL YEAR 1985 FUNDING REQUESTS

[In thousands of dollars]

Project or study	President's fiscal year 1985 budget	Corps' capability	Job bill request
Surveys:			
Dickinson Bayou	$225	$300	$300
Pine Island Bayou		250	250
Construction:			
Clear Creek			5,000
Neches River saltwater barrier			700
Taylors Bayou	4,000	4,000	4,000
Wallisville			7,000
Operation and maintenance:			
Galveston Harbor and Channel	5,260	5,260	5,260
Gulf Intracoastal Waterway	14,120	16,920	14,120
Houston ship channel	7,920	7,920	7,920
Sabine-Neches Waterway	7,520	7,520	7,520
Texas City Channel	2,000	2,000	2,000
Trinity River and tributaries channel to Liberty		1,000	1,000
Wallisville	150	150	150

STATEMENT OF WILLIAM E. NEILD, MAYOR, BEAUMONT, TEX.

NECHES RIVER SALTWATER BARRIER, JEFFERSON COUNTY, TEX.

Over the years, the intrusion of saltwater up the Neches River has progressively become more pronounced in terms of frequency and severity. The Neches River, which serves as the primary source of freshwater for the city of Beaumont and the local water authority, becomes contaminated and unusable during periods of saltwater intrusion. The Neches River saltwater barrier project, which has been scheduled for discussion before your subcommittee will, upon completion, afford us a reliable freshwater supply and permit us to provide water to our citizens in a more cost-effective manner. Additionally, the project will improve the fish and wildlife habitat and related recreational activities.

Our community will greatly appreciate your subcommittee's favorable consideration of the project.

TAYLORS BAYOU PROJECT

On behalf of Beaumont, Tex., I respectfully request that favorable consideration be given to the Taylors Bayou project, which has been scheduled for discussion before your subcommittee April 4, 1984. Taylors Bayou is an integral part of a major drainage system upon which 80 percent of this community and 60 percent of Jefferson County must rely for drainage and flood protection.

Completion of the Taylors Bayou project, because of the interdependent nature of this drainage system, will allow this city's existing facilities to operate effectively. Realistically, it offers the only means by which this municipality can successfully address the perennial threat of serious flood damage such as that which was experienced in April and July of 1979.

In April 1979, we were declared a disaster area. Two times in 1980 we flooded again. We can't let our citizens continue to experience this trauma, when the solution is before us in the Taylors Bayou project. Funding to begin work on this project is necessary now. The development in our city has further compounded our flooding problems, and without Taylors Bayou, we are now an even greater flooding potential each time it rains.

Our country sends disaster relief all over the world. Surely, we can avoid such disasters in America. The payments made in settlement of flood loss and emergency assistance time and again can be permanently eliminated in Beaumont with the Taylors Bayou project. Our thanks for your help and support in this most vital project.

STATEMENT OF JOE L. LAMB, CHAIRMAN, CLEAR LAKE AREA COUNCIL OF CITIES

I would like to take this opportunity as chairman of the Clear Lake Area Council of Cities to voice a concern about the recent decision to delete the Clear Creek rectification project from the Corps of Engineers' budget.

The Clear Lake Area Council of Cities is a small group of cities surrounding Clear Lake and Clear Creek. These cities are greatly affected by flooding from these tributaries. We have always supported the Corps of Engineers efforts to rectify Clear Creek's drainage problems. We hope that you will reconsider your decision to delete the project as this area is prone to flooding and we feel that the Corps is the only agency at the present time with the ability to help correct the problem.

Please reconsider and fund this project that years of time and money have already been spent on.

Member cities are Webster, Nassau Bay, Seabrook, El Lago, Clear Lake Shores, Kemah, and Taylor Lake Village.

STATEMENT OF RALPH L. LOWE, MAYOR, FRIENDSWOOD, TEX.

Dear sir, the city of Friendswood is located in Galveston and Harris Counties with Brazoria County directly west of our city boundary. The city of Friendswood is blessed (and sometimes cursed) by the location of four creeks which traverse the city—with Clear Creek being the major artery which the other creeks feed into, as do numerous major drainage outfalls outside our community. Due to the tremendous growth over the entire Clear Creek watershed, the runoff from development contributes many times the amount of water into Clear Creek than the creek can handle in its present configuration.

The Clear Creek watershed drains four counties—Fort Bend, Brazoria, Galveston, and Harris. Damages due to flooding in the Clear Creek watershed are in the hundreds of million dollar range rather than simply millions of dollars. In fact, a recent report published by the Federal Emergency Management Agency lists the city of Friendswood as being No. 8 in the entire Nation for damage claims paid due to flooding. Since these damage claims have been paid wholly or in part by the Federal Government, it seems to us that logic would dictate the need for a cooperative effort by the Federal Government and local sponsors to take necessary steps to improve the carrying capacity of Clear Creek to preclude recurring expenditures of the magnitude in the recent past.

For the past 20 years, the Corps of Engineers has been studying ways to solve this problem. Funds have been appropriated each year to enable the Corps to continue this study. The last plan presented to the people of this area was received with enthusiasm. Harris County appropriated the necessary funds to finance a second outlet from Clear Lake into Galveston Bay to complement the Corps' plan. The study now seems to be complete; what is needed now is implementation of the plan.

On behalf of the citizens of Friendswood and surrounding areas, we, the officials of the city of Friendswood, urge the members of your committee to seriously consider the appropriation of construction funds for the Corps of Engineers Clear Creek project in the fiscal year 1985 budget.

STATEMENT OF STEPHEN N. HUFFMAN, CITY MANAGER, GALVESTON, TEX.

I have learned with great interest of the Energy and Water Development Subcommittee's upcoming hearing on Galveston County projects for which funds will be requested in the fiscal year 1985 budget. On behalf of our mayor and city council, we offer the following letter of support.

Waterborne commerce is the major and largest source of employment and income on our island. Approximately one out of every two persons employed on the island obtains work in port-related activities. Between 15,000 and 17,000 persons find full-time employment in waterborne commerce annually. These figures represent from 47 to 51 percent of the total employment in the city. The combined total income from all sources in waterborne commerce exceeds $211 million annually. More than $2 out of every $5 of total income comes from waterborne commerce.

Therefore, the following proposed public works' projects in the fiscal year 1985 budget are essential to the city's economic vitality:

Galveston Harbor and Channel	$5,260,000
Gulf Intracoastal Waterway	14,120,000

It is our sincere hope that your subcommittee will vote to fund the city of Galveston's proposed projects.

RESOLUTION OF GROVES CITY (TEX.) COUNCIL

RESOLUTION NO. 84-05

WHEREAS, the Groves City Council supports the following public works projects that Congressman Jack Brooks will present before the House Committee on Appropriations and Senator Lloyd Bentsen will present before the Senate Committee on Appropriations for funding in the fiscal year 1985 budget:

(a) Dickinson Bayou (flood control)	$225,000
(b) Galveston Harbor and Channel (N)	5,260,000
(c) Sabine-Neches Waterway (operation and maintenance)	7,520,000
(d) Taylors Bayou (construction)	4,000,000
(e) Texas City Channel (operation and maintenance)	2,000,000
(f) Wallisville (operation and maintenance)	150,000
(g) Gulf Intracoatal Waterway (operation and maintenance)	14,120,000
(h) Houston ship channel (operation and maintenance)	7,920,000

and the following projects not included in the fiscal year 1985 budget, but for which funding will be requested:

(a) Clear Creek (construction)
(b) Galveston Bay area (navigation survey)
(c) Highland Bayou (construction)
(d) Neches River saltwater barrier (operation and maintenance)
(e) Pleasure Island (bank erosion survey)
(f) Texas City and vicinity (hurricane protection)
(g) Trinity River and tributaries, channel to Liberty

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF GROVES, TEXAS:

THAT this body does hereby go on record as wholeheartedly supporting the above projects for funding in the fiscal year 1985 budget; and

BE IT FURTHER RESOLVED that a copy of this resolution be furnished Congressman Jack Brooks, Senator Lloyd Bentsen, and members of the House and Senate Committees on Appropriations as evidence of the Groves City Council's support.

PASSED, APPROVED and ADOPTED this 12th day of March 1984.

STATEMENT OF JOE L. LAMB, MAYOR, LEAGUE CITY, TEX.

Gentlemen, the city of League City was greatly distressed when we heard that the Clear Creek rectification project was deleted from the budget. League City is prone to flooding from Clear Creek. We feel that because of the number of entities involved and because of the large scope of this project, that the Corps is the only agency capable of helping to correct this problem at this time.

I would think after 17-plus years, that a seniority list would automatically entitle this project to consideration. This project has almost been studied, literally to death, and I would hope that you would give it a shot of life and revive it. I hope that you will seriously reconsider reinstating this project in the budget and try to alleviate some of the problems in this fast-growing area.

Thank you for your consideration and attention in this matter.

STATEMENT OF HOMER E. NAGEL, MAYOR, NEDERLAND, TEX.

This is to advise that the city of Nederland is situated in the 9th Congressional District, Texas, and recommends your consideration of fiscal year 1985 budget appropriations for the following:

Project	*Fiscal year 1985 budget*
Dickinson Bayou (flood control)	$225,000
Galveston Harbor and Channel (N)	5,260,000
Sabine-Neches Waterway (operation and maintenance)	7,520,000
Taylors Bayou (construction)	4,000,000
Texas City Channel (operation and maintenance)	2,000,000
Wallisville (operation and maaintenance)	150,000
Gulf Intracoastal Waterway (operation and maintenance)	14,120,000
Houston Ship Channel (operation and maintenance)	7,920,000

In addition, we support the following projects not included in the fiscal year 1985 budget:

Project: Clear Creek (construction), Galveston Bay area (navigation survey), Highland Bayou (construction), Neches River saltwater barrier (construction), Pleasure Island (bank erosion survey), Texas City and vicinity (hurricane protection), and Trinity River and tributaries, channel to Liberty.

Your consideration of these recommendations is appreciated.

STATEMENT OF BERNIS W. SADLER, MAYOR, PORT ARTHUR, TEX.

PLEASURE ISLAND AT PORT ARTHUR (BANK EROSION SURVEY)

This statement is to urge the Energy and Water Development Subcommittee to include funds for Pleasure Island (bank erosion survey). This is a valuable strip of land for recreational, commercial, and industrial use, approximately 16 miles long, that is being rapidly eroded away by the wave action of ships and boats, which is destroying approximately 25 acres of land each year. This soil is normally washed back into the ship channel and has to be removed annually, causing expensive maintenance in the upkeep of this important waterway.

A major State highway is also being endangered by this erosion. The land area usefulness as a barrier against hurricane wave action is being destroyed.

Again, we urge that the Federal Government make a thorough investigation into this severe problem that exists along the Sabine-Neches Waterway.

TAYLORS BAYOU (CONSTRUCTION)

The city of Port Arthur fully supports the request of Jefferson County Drainage District No. 6 for fiscal year 1984 for $4 million to plan for the construction of flood control on Taylors Bayou, which drains the largest watershed area in Jefferson County.

Serious drainage problems in Beaumont and in the extraterritorial area of Port Arthur have caused major damage by the flooding of this bayou. The flooding was caused by the normal development of the upper watershed area, certain restrictions in the lower watershed area, and heavy rains this past year.

The city of Port Arthur wishes to go on record in support of this flood control project and encourages you to approve funds for the continuation of this project.

GULF INTRACOASTAL WATERWAY (OPERATION AND MAINTENANCE)

The city of Port Arthur fully supports the request for $14,120,000 for operation and maintenance of the intracoastal waterway system.

Approximately 12 miles of the busiest part of this waterway is within the city limits of Port Arthur and it plays a vital role in serving the major industry of this area.

The city of Port Arthur would like to go on record in support of this important waterway system and encourages you to approve funds for continued operation and maintenance.

SABINE-NECHES WATERWAY (OPERATION AND MAINTENANCE)

Port Arthur would like to go on record for approval of the fiscal year 1984 funds—$7,520,000—as requested by our honorable Congressman Jack Brooks.

The economic wellbeing of all citizens in southeast Texas and this Nation is dependent upon adequate deep water for the transportation of goods produced to serve the Nation. Approximately 11 percent of the Nation's oil supply is handled in this area.

Your favorable action would be appreciated.

STATEMENT OF EMMETT F. LOWRY, MAYOR, TEXAS CITY, TEX.

On behalf of the city commission and the citizens of Texas City, we sincerely request your support for adequate appropriations for the following projects pertaining to our city and neighboring communities that are all vitally intermingled for the benefit of all of the citizens of Galveston County:

Dickinson Bayou (flood control); Galveston Harbor and Channel (N); Texas City Channel (operation and maintenance); Clear Creek (construction); Galveston Bay area (navigation survey); Highland Bayou (construction); and Texas City and vicinity (hurricane protection).

The Port of Texas City now handles more than 41 million tons of shipping annually, an increase of 8 million tons in 1983. The major cargos consist of raw and finished products to and from our multibillion dollar petrochemical industries. The economic life of our community depends to a large degree upon the industries who use the port and the many supporting service and retail business.

Residents in Texas City, Dickinson, Clear Creek, and Highland Bayou areas have been flooded repeatedly because of heavy rainfall. Any relief in the form of construction funds for deepening and widening of bayous, creeks, and canals would help all the citizens in this area. We urge your support of these very important projects.

Should you have any specific questions pertaining to these projects, we will be most willing to cooperate in providing any information we have available for the use of your committee.

STATEMENT OF ALMA L. TURNER, COUNTY JUDGE, CHAMBERS COUNTY, TEX.

Chambers County requests that the Wallisville (operation and maintenance) project funding remain included in the fiscal year 1985 budget. The Wallisville project is of great importance to Chambers County and should be considered in the top-priority group for funding.

The continued funding of the Wallisville project for operation and maintenance will result in the preserving and continued upkeep of the existing property and facilities. Proper care and maintenance will protect the condition of the existing property when funds become available for completion under the project plans. When completed, the project will be a great benefit for Chambers County.

STATEMENT OF TOM BASS, COMMISSIONER, PRECINCT 1, HARRIS COUNTY, TEX.

House and Senate Appropriations Committees are hearing requests for public works projects on Wednesday, April 4, 1984. The Clear Creek Corps of Engineers project will be discussed, but initial indications are that the Corps has not set aside funds to initiate construction in fiscal year 1985. Plans and specifications will be ready near the end of 1984, and call for approximately $8.6 million. Local matching funds of approximately $2.4 million are included in this total. This is not beyond the capability of Harris County.

A great deal of planning and development has progressed in southern Harris County in anticipation of this important project. To delay construction funding at this point could threaten the project and ultimately result in flood damages well exceeding the cost of the project.

Our request to you at this time is to help us. If there is anything you can do to move this project along, your assistance will never be forgotten. We recognize that projects of this sort are closely scrutinized but sincerely feel that the Federal Government will save money by paying for construction rather than damages.

We don't ask for many favors. When we do ask, we really mean it. We have committed our share of the funding. Please help us keep this project on track.

STATEMENT OF RALPH L. TABOR, WASHINGTON REPRESENTATIVE, HARRIS COUNTY FLOOD CONTROL DISTRICT, TEXAS

On behalf of the Harris County Flood Control District, we would like to submit an additional statement for the record regarding funding of other projects in the county. We would appreciate it if this statement could be included after the testimony presented by Representative Jack Brooks on April 4, 1984.

We would like to support funding levels as requested by the administration for the following projects in Harris County:

One, Vince and Little Vince Bayous, $4 million for continued construction of flood control improvement; two, Upper White Oak Bayou and tributaries, $550,000 for continuation of planning and engineering; three, Buffalo Bayou and tributaries, $1,020,000 for operation and maintenance work; and four, Buffalo Bayou and tributaries, $900,000 for flood damage prevention studies.

We would like to reiterate our strong support for initiating construction in fiscal year 1985 on the Clear Creek flood control project. Enclosed is a copy of a resolution approved by the Harris County Commissioners Court supporting the Clear Creek flood control project.

Thank you very much.

RESOLUTION OF HARRIS COUNTY, TEX.

WHEREAS, the United States Congress authorized the Clear Creek Flood Control Project in 1968; and

WHEREAS, the Corps of Engineers has recommended the approval of a modified ten (10) year plan which features a ten (10) year channel, a second outlet from Clear Lake into Galveston Bay, and management of the residual 100 year flood plain; and

WHEREAS, Harris County Commissioners Court and the other local sponsors have endorsed the Modified Ten (10) Year Plan; and

WHEREAS, the United States Congress has approved the Modified Ten (10) Year Plan for Clear Creek; and

WHEREAS, the Corps of Engineers will have completed designs and specifications for the first increment of construction of the project by the end of fiscal year 1984; and

WHEREAS, the Clear Creek Watershed has undergone rapid population growth and development; and

WHEREAS, average annual flood damages greater than the cost of the project will occur and will increase in the absence of Federal Flood Control project;

NOW, THEREFORE, BE IT RESOLVED that the Harris County Commissioners Court hereby petitions the Appropriations Committees of the Congress of the United States to make available adequate funding to initiate the construction of the Corps of Engineers Clear Creek Project.

IT IS HEREBY ORDERED that this Resolution be approved and spread upon the minutes of this Court on this 20th day of March, A.D., 1984.

STATEMENT OF RICHARD P. LEBLANC, JR., COUNTY JUDGE, JEFFERSON COUNTY, TEX.

The Commissioners' Court of Jefferson County, Tex., would like to go on record in support of the following projects which pertain to Jefferson County and will be presented by Congressman Jack Brooks on Wednesday, April 4, 1984:

Sabine-Neches Waterway, Taylors Bayou, Gulf Intracoastal Waterway, Neches River saltwater barrier, and Pleasure Island.

It is our opinion that such projects should be included in the 1985 budget as these projects are vital to our area and are in the best interest of the citizens of Jefferson County.

STATEMENT OF JAMES W. MARTIN, PORT DIRECTOR, PORT OF BEAUMONT, TEX.

The Port of Beaumont Navigation District of Jefferson County, Tex., strongly supports that item in the fiscal year 1985 budget for public works which proposes a total of $7,520,000 for continued operation and maintenance of the Sabine-Neches Waterway and respectfully urges favorable consideration and action by your committee. The Port of Beaumont Navigation District of Jefferson County is the agency which operates and maintains the public wharves of the Port of Beaumont.

Proper maintenance of this waterway is absolutely essential if the marine terminals in our area are to continue operating at maximum efficiency. We respectfully urge your committee to approve the requested funds.

STATEMENT OF C. S. DEVOY, EXECUTIVE DIRECTOR AND GENERAL MANAGER, PORT OF GALVESTON, TEX.

Dear sir, we respectfully request your consideration of our comments on the following projects included in the fiscal year 1985 budget. There are two navigation projects in the Galveston area that require funding.

Galveston Harbor and channel (operation and maintenance).—The Port of Galveston's Harbor and channel is authorized to be maintained at a 40-foot project depth. This depth is required for vessels serving the port's two export elevators and its container terminal.

In 1983, 223 million bushels of bulk grain was exported through the Port of Galveston. Over 50 million bushels have been exported already in the first 2 months of 1984. This trade is very important to the farmers in the Midwest and Southwest. It also is an important part of reducing our national foreign trade deficit. In 1983, over 1 million tons moved through the port's container terminal. The port is completing, this year, improvements that will double the capacity and has invested over $12 million in this expansion.

The President's budget includes $5,260,000 for this work. This amount is necessary and adequate for this work and is within the Corps of Engineers capability.

Gulf Intracoastal Waterway (operation and maintenance).—The President's budget includes $14,120,000 for this waterway. It is our understanding that the Corps of Engineers current estimated cost is $16,920,000, and we recommend this amount be authorized. This waterway is of vital importance to industry located along the entire gulf coast.

We thank you again, Mr. Chairman, for your consideration of our comments.

STATEMENT OF DOW WYNN, GENERAL MANAGER, PORT OF PORT ARTHUR, TEX.

We respectfully ask that you favorably consider the public works funds request by our Congressman Jack B. Brooks for the operation and maintenance of the Sabine-Neches Waterway and the Gulf Intracoastal Waterway of Texas. Only minimally necessary funds are requested to insure the operation and maintenance of these vital Federal waterways.

The major refineries on our Sabine-Neches Waterway currently produce up to 10 percent or more of America's energy fuels. The waterway handles up to 40,000,000 s/t of commerce, including import crudes, domestic, and export shipments, as well. The economic and military security of America depends on keeping these vital waterways open, now and in the future.

The Gulf Intracoastal Waterway of Texas is an indispensable connecting link between hundreds of chemical and petrochemical plants and other refineries, here and across the gulf coast. Combined plant investment of these essential industries exceeds $30 billion, just on the Texas segments of the Gulf Intracoastal Waterway alone, according to recent estimates.

No new construction is anticipated in these requests, and the funds appropriated are vital to our economy and national defense. Your favorable consideration is justified, we submit, and is respectfully requested.

STATEMENT OF BOB SHAW, PRESIDENT, GREATER PORT ARTHUR (TEX.) CHAMBER OF COMMERCE

SABINE-NECHES WATERWAY

We, the board of directors of the Greater Port Arthur Chamber of Commerce, request approval of the $7,520,000 appropriation for the operation and maintenance of the Sabine-Neches Waterway for fiscal year 1985. Our area is of significant importance to the Nation by the fact that more than 10 percent of the Nation's refined petroleum products are transported through our complex of refineries. Today, refineries are relying more and more on larger and greater numbers of tankers to bring in vitally needed imported crude and to handle export and domestic shipments as well.

We respectfully request your favorable consideration to the request for $7,520,000 for the operation and maintenance of the Sabine-Neches Waterway for fiscal year 1985.

TAYLORS BAYOU

We request aproval of the $4 million appropriation for Taylors Bayou construction project for fiscal year 1985. This project dates back to 1946 and, as you well know, construction costs have soared since that time. We feel that this will benefit our community, not only from an economic standpoint, but also from a drainage standpoint. It is essential that drainage protection be provided for our area.

Therefore, we respectfully urge your committee to approve funds proposed for the forthcoming fiscal year.

GULF INTRACOASTAL WATERWAY

We request your favorable consideration of the $14,120,000 appropriation for the operation and maintenance of the Gulf Intracoastal Waterway for the fiscal year 1985. The Gulf Intracoastal Waterway of Texas is an indispensable link between area refineries, chemical and petrochemical plants, all of which are absolutely essential to the security as well as the economical well being of our Nation today. Few, if any, waterways in America contribute more to the American economy, to our strengthened relations with a peaceful world, and toward achieving a better balance of trade than the Gulf Intracoastal Waterway of Texas.

We, therefore, respectfully request your favorable consideration of this $14,120,000 appropriation.

PLEASURE ISLAND

We request your favorable consideration to include an adequate appropriation for surveying the erosion problem of Pleasure Island. Currently, Pleasure Island is continuing to erode into the Sabine-Neches ship channel. This natural erosion places a greater need for continued maintenance dredging of the channel.

The erosion problem is currently threatening Texas Highway 82 which links Port Arthur, Tex., to Cameron, La. Pleasure Island holds great potential for future recreational and industrial development for the greater Port Arthur area and also serves as a natural wave barrier for the protection of Port Arthur.

We, therefore, request your favorable consideration of including this unbudgeted item in the fiscal year 1985 budget.

STATEMENT OF MAX DORSETT, COMMISSIONER, CHAIRMAN, GALVESTON COUNTY DRAINAGE DISTRICT NO. 2, TEXAS

Your favorable consideration of the Texas City and vicinity (hurricane protection), Highland Bayou (construction), Dickinson Bayou (flood control and survey), and Clear Creek (engineering and design) projects is sincerely requested by the commissioners of Galveston County Drainage District No. 2.

The continued funding of the Texas City and vicinity (hurricane protection) system is vitally important as the construction is over 90 percent complete with only the pump station and interior drainage revisions in the La Marque area remaining to be completed.

The continued funding of the Highland Bayou (construction) which is over 98 percent complete will conclude a project which has already immeasurably relieved flooding in the watershed.

The north part of the district is served by Dickinson Bayou. The lower reaches have flooded extensively on a regular basis causing very heavy property damage and eliminating highway access. We request your favorable consideration of the Dickinson Bayou (flood control and survey) project to begin defining the corrective actions that will be required.

The Clear Creek watershed area has a significant economic impact on Galveston and Harris counties. The continued regular flooding of the watershed needs to be corrected as soon as possible. Your support of the Clear Creek (advance engineering and design) project will be appreciated.

The commissioners of Galveston County Drainage District No. 2 appreciate your individual efforts to insure the most efficient expenditure of funds available. The completion of the above projects currently under construction—Texas City and vicinity and Highland Bayou—will serve the best interest of the district's constituents and the Texas City industrial area.

STATEMENT OF LEROY MCCALL, JR., PRESIDENT, JEFFERSON COUNTY DRAINAGE DISTRICT NO. 3, TEXAS

Dear Senator Hatfield, work on the Taylors Bayou drainage and flood control project has continued to progress for several years and during that period of time a great deal has been accomplished. The citizens and residents of this area are anxiously awaiting the day when we can say that the project has been completed.

Congressman Jack Brooks has worked untiringly for many years in support of our project, and if it had not been for his efforts, we would not be at the point we are today.

At this time, the acquisition of rights of way, spoil disposal areas, and the completion of channel enlargement has been accomplished, and the Corps of Engineers has now awarded the contract for the construction of the saltwater barrier, which is a vital and necessary link in our overall flood control project.

Jefferson County Drainage District No. 3 has been advised that $4 milion has been allocated in the currently proposed budget for continued work on this project, which is of vital importance to the residents of this area. Jefferson County Drainage District No. 3 is requesting your support and assistance in having this amount included in the budget for the fiscal year 1985.

STATEMENT OF SAM O. SMITH, PRESIDENT, JEFFERSON COUNTY DRAINAGE DISTRICT NO. 6, TEXAS

Dear Senator Hatfield, the Taylors Bayou drainage and flood control project, financed primarily by Federal funds, is continuing to develop and move forward toward solving many drainage and flooding problems in southeast Texas. This is due, to a large degree, to the efforts of our own Congressman, Jack Brooks, and because of your subcommittee's willingness to approve and champion support for worthwhile and viable projects such as this that help to improve the quality of life for many people.

Since actual work began on this project several years ago, much progress has been achieved, including the acquisition of rights of way, spoil disposall areas, and channel enlargement. This past winter a contract was awarded by the Corps of Engineers to construct a saltwater barrier as part of the overall flood control plan. Other efforts toward final planning for channel alignment and construction design are progressing smoothly.

The district has been advised that $4 million has been allocated in the currently proposed budget for continued work on this much needed project. We wholeheartedly support this allocation and request your support and assistance in having this amount included in the adopted budget for fiscal year 1985.

The district also supports the funding request for the Sabine-Neches Waterway (operation and maintenance) in the amount of $7.5 million and for the Neches River saltwater barrier (construction).

STATEMENT OF EUGENE RASHETA, CHAIRMAN, JEFFERSON COUNTY DRAINAGE DISTRICT NO. 7, TEXAS

Gentlemen, as one of the local sponsors, Jefferson County Drainage District No. 7 fully supports the $4 million proposed in the fiscal year 1985 budget for the construction of the Taylors Bayou project in Jefferson County, Tex.

This project includes widening and deepening of existing channels, construction of a bypass channel, and installation of saltwater gates. With these improvements to the downstream channels, the full benefits of existing and planned upstream drainage projects will be realized.

This project, which will provide drainage benefits for about 586 square miles, or 60 percent, of Jefferson County, was recommended by the Corps of Engineers in 1948. Many problems, including environmental objections, have delayed the commencement of construction. Solutions to those problems have been worked out, and construction is now in progress. It is essential that construction continue as rapidly as possible.

Drainage district No. 7 provides drainage for 107 square miles of Jefferson County and is naturally interested in the progress of this project. About 70 square miles of our area discharges into Taylors Bayou, and although we provide for drainage within our own area; some provisions must be made for the runoff beyond our boundaries. The Taylors Bayou project will accomplish this.

What was needed in 1948 has become a critical necessity today, and its importance will continue to increase in the future.

We request the committee's approval of the $4 million proposed in the fiscal year 1985 budget.

STATEMENT OF JOE BROUSSARD II, PRESIDENT, LOWER NECHES VALLEY AUTHORITY, TEXAS

Dear Senator Hatfield, the Water Resources Development Act of 1976 authorized the Secretary of the Army, acting through the Chief of Engineers, to undertake the phase I design stage of advanced engineering and design of the saltwater barrier in the Neches River basin at Beaumont, Tex.

The project will provide a gated water structure in the Neches River at mile 23 near Beaumont, a gated navigation bypass channel, an access road and levee, and an auxiliary dam across a canal which drains an adjacent bayou. The proposed structure will prevent saltwater from intruding into the LNVA intake canals as well as provide for free and unobstructed use of the existing navigable portion of the Neches River. The barrier will afford needed water quality protection to municipalities, the large petrochemical industries of southeast Texas, and irrigation water for rice farmers. The swamp area upstream from the project would be improved for recreational swimming, boating, hunting, and freshwater fishing.

Environmental comments from all agencies on this project have been favorable. Favorable environmental statements were given by: State of Texas, Department of Interior, Department of Agriculture, Department of Transportation, Department of Health, Education and Welfare, and Environmental Protection Agency.

The general design memorandum and final supplement to the final environmental impact statement for the Neches River saltwater barrier at Beaumont, Tex., has been completed in accordance with section 102(2)(c) of the National Environmental Policy Act, and has been filed with appropriate agencies. Timely funding has enabled the Galveston District to complete an acceptable general design memorandum. The Galveston Corps of Engineers will be in a posture to initiate work when construction funds are available.

Please insert $700,000 in the district's budget so that construction of this vital project can be initiated in 1985.

STATEMENT OF D. P. WHEAT, JR., BEAUMONT, TEX.

Dear Senator Hatfield, as chairman of the citizens' committee which supported passage of the bond issue to provide the local funding for the authorized project, I urge you to fund the Corps of Engineers' capability of $4 million for next year.

Construction is now underway on the Taylors Bayou construction project, and these funds will be used to complete a diversion channel in phase I, which will eliminate a serious bottleneck in the outfall canal. Thousands of homes and business properties in our county will continue to be threatened yearly by flooding until this problem is corrected. We had serious losses in 1979 and 1980.

I urge you to approve this project's continued funding, and look forward to being in Washington for the committee hearings in early April.

STATEMENT OF HON. JOHN TOWER, U.S. SENATOR FROM TEXAS

PREPARED STATEMENT

Senator TOWER. Mr. Chairman, I would like to ask unanimous consent that my statement be incorporated in full in the record.

Chairman HATFIELD. It will be inserted in the record.

[The statement follows:]

STATEMENT OF SENATOR JOHN TOWER

Mr. Chairman, I appreciate the opportunity to appear before the Energy and Water Development Subcommittee of the Senate Committee on Appropriations to voice my recommendation for various public works projects located in the State of Texas.

Texas is blessed with an abundance of natural resources which have enabled her to become a leader in the production of food, fiber, and energy. Unfortunately, one commodity, vital to Texas' continued growth and high levels of production, is lacking. That commodity is water. Existing natural water supplies are inadequate to meet the needs of our constantly expanding population, agricultural, and industrial sectors. This problem can only become worse and I request that as the committee considers the projects presented here today, that they keep in mind the enormous needs of our State.

I know that we meet at a time of great budgetary concern. While this concern is justified, we must not let it obscure the need to address the long-time infrastructure problems our Nation faces. Each of these projects proposed for funding is an investment in our future. The benefits to the Federal Government will outweigh the costs invested in each project during its lifetime. Additionally, environmental concerns have been met and satisfied. The impact on the environment has been kept to a minimum. The combination of economic and environmental factors involved in each project is, in my view, well balanced.

Mr. Chairman, I have offered testimony before your committee many times in behalf of flood control and water resource projects which have been proposed and built in Texas. All Texans owe you their gratitude for understanding the needs of our State. In their behalf, I want to express my appreciation for your work here.

At this juncture, I would direct your attention to some of the projects that I believe are vital to the welfare and economy of Texas, as well as the Nation.

First, the projects in the Houston-Galveston area in need of funding. Those include $300,000 for the study of the San Jacinto River and its tributaries; $900,000 for the continued study of flood problems on Buffalo Bayou and its tributaries; and $550,000 for investigation of Upper White Oak Bayou.

For the Corpus Christi ship channel, I ask your approval of $10.1 million for the construction of the inner harbor 45-foot project which is essential to the continued viability to the Port of Corpus Christi.

Next, I must mention the Trinity River projects. These are $175,000 for survey work on Johnson Creek; $18.1 million for construction of Joe Pool Lake; and $58 million for continued construction of Ray Roberts Lake. I note that for the first time in many years, funding for the Trinity River and tributaries project has not been included in the Corps of Engineers budget request. I urge the committee to support reinstatement of study funding to the degree of the Corps' capability. Finally, I support $4.2 million for rehabilitation work on Grapevine Lake.

In the Brazos River basin, I support $200,000 for construction of the San Gabriel River project.

In the Red River basin, I urge $340,000 for survey and investigation work on Lake Wichita and Holliday Creek.

I would add my support to several additional projects, including $4 million for construction on Taylors Bayou; $7 million for continuation of the El Paso flood control project; and $5 million for construction on the San Antonio Channel. The sum of $3 million is required for continuation of Vince and Little Vince Bayous. I support $4.8 million for the mouth of the Colorado River project.

I must also say a few words regarding the relocation of the north jetty in Freeport Harbor. The current condition of this jetty constitutes a hazard to navigation. This is of special concern to me since access to the strategic petroleum reserve at Bryan Mound is through this harbor. The local sponsor has raised its share of the funds necessary and I support $2,350,000 to begin construction on this absolutely essential work.

Finally, I must address three additional projects not included in the Corps of Engineers fiscal year 1985 budget request. The Clear Creek flood control project has been studied for many years and deemed worthwhile. The citizens in this area have suffered devastating damage on numerous occasions and it is imperative that funds be allocated for construction. The Corps has expressed a $1 million capability for the Trinity River and tributaries, channel to Liberty, Tex., project and I urge reinstatement of funding to this capability. Last, the very important Wallisville Reservoir project has been halted by Federal court injunction. The Corps recently submitted to the court a revised environmental impact statement and a post-authorization change report. Should the court lift the injunction as a result of this action, I urge funding to the extent of the capability expressed by the Corps.

Mr. Chairman, and members of the subcommittee, I thank you for the opportunity to express my views and ask that you give each of the projects your every consideration.

FUNDING RECOMMENDATION

Senator TOWER. I will proceed to summarize.

I direct your attention to some of the projects that I believe are vital to not only the welfare and the economy of Texas but the Nation as a whole.

First, the projects in the Houston-Galveston area in need of funding. Those include $300,000 for the study of the San Jacinto River and its tributaries; $900,000 for the continued study of the flood problems on Buffalo Bayou and its tributaries; and $550,000 for investigation of upper White Oak Bayou.

For the Corpus Christi ship channel I ask your approval of $10.1 million for the construction of the inner harbor 45-foot project which is essential to the continued viability of the Port of Corpus Christi.

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In the Brazos River basin, I support $200,000 for construction of the San Gabriel River project.

In the Red River basin I urge $340,000 for survey and investigation work on Lake Wichita and Holliday Creek. I want to particularly emphasize Holliday Creek because every time we have a heavy rain it inundates my front yard. [Laughter.]

I would like to add my support to several additional projects, including $4 million for construction on Taylors Bayou; $7 million for continuation of the El Paso flood control project; and $5 million for construction on the San Antonio Channel. The sum of $3 million is required for continuation of Vince and Little Vince Bayous construction. I support $4.8 million for the mouth of the Colorado River project.

I must also make note of the relocation of the north jetties in Freeport Harbor. The current condition of these jetties constitutes a hazard to navigation. This is of special concern to me since access to the Strategic Petroleum Reserve at Bryan Mound is through this harbor. The local sponsor has raised its share of the funds necessary and I support $2,350,000 to begin construction on this absolutely essential work.

Finally, I should address three additional projects not included in the Corps of Engineers fiscal year 1985 budget request. The Clear Creek flood control project has been studied for many years and deemed very worthwhile. The citizens in this area have suffered devastating damage on numerous occasions and it is imperative that funds be allocated for construction. The Corps has expressed a $1 million capability for the Trinity River and tributaries, channel to Liberty, Tex., project and I urge reinstatement of funding to this capability. Last, the very important Wallisville Reservoir project has been halted by Federal court injunction. The Corps recently submitted to the court a revised environmental impact statement and a post-authorization change report. Should the court lift the injunction as a result of this action, I urge funding to the extent of the capability expressed by the Corps.

Mr. Chairman, I would like to thank you for the consideration this committee has always given to the very worthwhile projects recommended for my State and urge that you give every consideration to these that we have testified on today.

Thank you very much.

Chairman HATFIELD. Thank you, Senator.

Senator Bentsen.

STATEMENT OF HON. LLOYD BENTSEN, U.S. SENATOR FROM TEXAS

Senator BENTSEN. Thank you, Mr. Chairman.

I am delighted to be with my good friend Chairman Jack Brooks and I would like to say to my colleague, about my being chairman of the Democratic Senate Campaign Committee, his recent decision has made my job a lot easier. I would also say that when I came up here years ago I thought a man of his age would have retired a long time ago [Laughter.] I say it has taken me a long time to get No. 1 on my license plate, but if the Lord lets me hang around until the first of the year, I am going to enjoy it. I have enjoyed working with both of them.

I am not going to specifically discuss all of the projects I support in my oral testimony. They are included in my complete remarks.

Chairman HATFIELD. Your statement will be made part of the record.

[The statement follows:]

Statement of Senator Lloyd Bentsen

MR. CHAIRMAN, THANK YOU FOR ALLOWING ME TO TESTIFY BEFORE YOUR SUBCOMMITTEE REGARDING PROJECTS DESIGNED TO MANAGE AND DEVELOP OUR PRECIOUS WATER RESOURCES. AS WE ENTERED THE EIGHTIES THERE WAS A GROWING CONSENSUS THAT OUR PUBLIC WORKS SPENDING REQUIREMENTS WOULD FAR EXCEED THE SPENDING LEVELS OF THE SEVENTIES. FROM OUR VANTAGE POINT TODAY WE KNOW JUST HOW UNRELENTING THE GROWING DEMANDS HAVE BEEN ON OUR SCARCE NATIONAL FINANCES. WE HAVE BEEN FORCED TO MAKE SOME TOUGH DECISIONS REGARDING WHAT PROJECTS SHOULD BE FUNDED AND WHAT THE LEVEL OF FUNDING SHOULD BE. I BELIEVE THE WISE DEVELOPMENT AND ENHANCEMENT OF WATER RESOURCES HAS TO BE ONE OF OUR NATION'S MOST PRESSING NEEDS. RECENTLY, THE U.S. NEWS AND WORLD REPORT POINTED OUT THAT "MANY EXPERTS COMPARE TODAY'S WATER PROBLEMS TO THE ENERGY CRUNCH OF THE 1970'S. WATER, THEY PREDICT, WILL BE THE RESOURCE CRISIS OF THE '80s." IT IS FURTHER STATED THAT "STATISTICALLY, AT LEAST , THE U.S. SHOULD NOT HAVE A WATER PROBLEM AT ALL. ABOUT 4.2 TRILLION GALLONS OF RAIN AND SNOW FALL ON THE CONTIGUOUS 48 STATES ON A TYPICAL DAY, WHILE AMERICANS USE ONLY 450 BILLION GALLONS DAILY." THE PROBLEM IS THAT THE SUPPLY IS UNEVENLY DISTRIBUTED AND ADEQUATE PROVISIONS HAVE NOT BEEN MADE TO CONSERVE AND DISTRIBUTE THE OVERSUPPLY.

IN A REPORT PREPARED BY THE LIBRARY OF CONGRESS' CONGRESSIONAL RESEARCH SERVICE PUBLISHED IN 1980, IT WAS POINTED OUT THAT TEXAS SUFFERS FROM AN INADEQUATE SURFACE WATER SUPPLY AND EXPERIENCES EXTENSIVE FLOODING IN CERTAIN AREAS WHILE OTHER AREAS ARE SUBJECT TO WIDESPREAD DROUGHT. THESE FACTS, COMBINED WITH PROJECTIONS OF CONTINUED RAPID GROWTH IN TEXAS, HIGHLIGHT THE IMPORTANT ROLE PRUDENT WATER RESOURCE PLANNING AND MANAGEMENT HAS FOR THE PRESENT AND FUTURE OF TEXAS. IT IS WITH THESE THOUGHTS IN MIND THAT I EXPRESS MY STRONG SUPPORT FOR THE PRESIDENT'S BUDGET REQUEST FOR FISCAL YEAR 1985 FOR EACH OF THE TEXAS PROJECTS AND ASK THIS COMMITTEE TO FAVORABLY CONSIDER SOME REQUIREMENTS FOR

ADDITIONAL FUNDING. I TAKE THIS ACTION RECOGNIZING MY LONG STANDING SUPPORT FOR THE PRUDENT CURTAILMENT OF TOTAL FEDERAL SPENDING. HOWEVER, WE CANNOT AFFORD TO LOSE THE INVESTMENT OF THE PAST OR IGNORE THE NEEDS OF THE FUTURE WITH SUCH A CRITICAL RESOURCE AS WATER. MR. CHAIRMAN, WHEN I APPEARED BEFORE THIS COMMITTEE LAST YEAR I TESTIFIED IN SUPPORT OF THE CONSTRUCITON OF BOTH COMPONENTS -- A NAVIGATION AND DIVERSION CHANNEL -- OF THE MOUTH OF THE COLORADO RIVER PROJECT IN TEXAS. I AM PLEASED THAT SUBSEQUENTLY THIS COMMITTEE, THE SENATE AS A WHOLE, AND THE FULL CONGRESS APPROVED FUNDS TO CONSTRUCT BOTH OF THESE CHANNELS. THE CORPS OF ENGINEERS WAS ALSO DIRECTED TO CONSTRUCT BOTH COMPONENTS BASED ON AGREEMENTS BETWEEN FEDERAL AGENCIES AND LOCAL SPONSORS. AT THIS TIME I RE-AFFIRM MY SUPPORT FOR BOTH CHANNELS BEING BUILT IN KEEPING WITH CONGRESS' INTENT WHEN IT PROVIDED THE FUNDING. I WOULD NOW LIKE TO ESPECIALLY NOTE THE FOLLOWING PROJECTS FOR BY '85.

I. CORPS OF ENGINEERS

UNDER "SURVEYS", LITTLE CYPRESS CREEK IS INCLUDED FOR $300,000. I ENDORSE THIS FUNDING AS PART OF A LONG RANGE PLAN TO PROVIDE A MULTI-PURPOSE RESERVOIR FOR ONE OF THE FASTEST GROWING AREAS IN TEXAS. ALSO, A MULTIPLE-PURPOSE CHANNEL FOR FLOOD CONTROL, RECREATION AND NAVIGATION FROM TRINITY BAY TO LIBERTY IS RECOMMENDED FOR FUNDING. THE FORT WORTH DISTRICT HAS A CAPABILITY OF $350,000 TO COMPLETE THIS PHASE II STUDY.

UNDER "CONSTRUCTION" THERE ARE SIX PROJECTS I WISH TO HIGHLIGHT. FIRST, THE COOPER LAKE PROJECT IS NECESSARY TO SUPPLY WATER TO MUCH OF NORTHEAST TEXAS. CONGRESS HAS CONSISTENTLY SUPPORTED THE PROJECT WITH CONSTRUCTION FUNDING. HOWEVER, THE PROJECT HAS BEEN DELAYED DUE TO LITIGATION OVER ITS ENVIRONMENTAL IMPACT STATEMENT. THE FIFTH CIRCUIT COURT OF APPEALS RECENTLY HEARD ORAL ARGUMENTS ON THE COOPER LAKE APPEAL. EVEN THOUGH A DECISION HAS NOT BEEN RENDERED, IT IS

IMPERATIVE THAT CONGRESS CONTINUE TO SHOW ITS FIRM COMMITMENT TO THE PROJECT BY INCLUDING FUNDS FOR FISCAL YEAR 1985. I BELIEVE THE APPROPRIATION FOR COOPER LAKE SHOULD BE $500,000.

SECOND, THE TAYLORS BAYOU DRAINAGE AND FLOOD CONTROL PROJECT IS BUDGETED IN THE PRESIDENTS' FY '85 BUDGET REQUEST FOR $4 MILLION. I WHOLEHEARTEDLY SUPPORT THIS ALLOCATION AND ENCOURAGE ITS ACCEPTANCE BY THIS COMMITTEE.

THIRD, THE SALT WATER BARRIER IN NECHES RIVER BASIN IN BEAUMONT, TEXAS PROJECT WILL PROVIDE A GATED WATER BARRIER AT MILE 23 OF THE RIVER NEAR BEAUMONT, A GATED NAVIGATION BYPASS CHANNEL, AN ACCESS ACCESS ROAD AND LEVEE, AND AN AUXILIARY DAM ACROSS THE CHANNEL WHICH DRAINS AN ADJACENT BAYOU. THIS PROPOSED STRUCTURE WOULD PREVENT SALT WATER FROM INTRUDING INTO THE LOWER NECHES VALLEY AUTHORITY INTAKE CANALS AS WELL AS PROVIDE A FREE AND UNOBSTRUCTED USE OF THE EXISTING NAVIGABLE PORTION OF THE NECHES RIVER. THE BARRIER WILL AFFORD NEEDED WATER QUALITY PROTECTION TO MUNICIPALITIES, THE LARGE PETRO-CHEMICAL INDUSTRIES OF SOUTHEAST TEXAS AND IRRIGATION WATER FOR RICE FARMERS. ENVIRONMENTAL COMMENT FROM ALL INTERESTED PARTIES HAS BEEN FAVORABLE. THE GENERAL DESIGN MEMORANDUM AND FINAL STATEMENT TO THE FINAL ENVIRONMENTAL IMPACT STATEMENT HAVE BEEN COMPLETED AND HAVE BEEN FILED WITH THE APPROPRIATE AGENCIES. I AM CONFIDENT THAT THE CORPS OF ENGINEERS COULD INITIATE CONSTRUCTION ON THIS PROJECT IN FY '85, BUT THE PRESIDENT DID NOT PROPOSE ANY FUNDING. I BELIEVE THAT THE CORPS HAS THE CAPABILITY OF APPROXIMATELY $700,000 TO BEGIN CONSTRUCTION ON THIS VITAL PROJECT AND WOULD URGE THE COMMITTEE TO CONSIDER SUCH ACTION.

FOURTH, THE PROJECT TO DEEPEN THE FREEPORT, TEXAS, HARBOR DESERVES CONSIDERATION BY THIS COMMITTEE. FOUR YEARS AGO, THE CONGRESS ACTED TO ALLOW THE CORPS OF ENGINEERS TO RECEIVE UP TO $10,000,000 IN FUNDS SUBMITTED BY LOCAL SPONSORS OF

THIS PROJECT. IT CONTINUES TO BE ONE OF THE BEST PROJECTS TO BE PRESENTED TO THE COMMITTEE WITH A BENEFIT/COST RATIO WELL ABOVE 6 TO 1. EVEN THOUGH THE CORPS IS ALLOWED TO RECEIVE THESE FUNDS TO BEGIN CONSTRUCTION ON THIS PROJECT, THE ADMINISTRATION WANTS UP FRONT FINANCING BY THE LOCAL INTERESTS. IT IS MY UNDERSTANDING THAT THE ADMINISTRATION AND THE LOCAL INTERESTS HAVE AGREED TO SPLIT EQUALLY THE COSTS OF REHABILITATING AND RELOCATING EXISTING JETTIES. THIS REPRESENTS A MAJOR DEPARTURE FROM TRADITIONAL PORT FUNDING. THE BUDGET REQUEST INCLUDES $2.35 MILLION FOR THE PROJECT. THE EXISTING JETTIES HAVE DETERIORATED BECAUSE MAINTENANCE HAS BEEN DEFERRED DUE TO THE ANTICIPATED RELOCATION. CORPS OFFICIALS NOW PREDICT THAT THEY WILL COLLAPSE IN THE EVENT OF A HURRICANE AND BLOCK THE CHANNEL. LAST YEAR THIS PROJECT WAS INCLUDED FOR FUNDING IN H.R. 3958 AND WAS FAVORABLY REPORTED ON BY THIS COMMITTEE. THIS BILL IS CURRENTLY PENDING BEFORE THE FULL SENATE. HOWEVER, IT APPEARS UNLIKELY THAT THE SENATE WILL ACT ON H.R. 3958; CONSEQUENTLY, I STRONGLY URGE THIS COMMITTEE TO INCLUDE FUNDS FOR THIS PROJECT IN THE FY '85 REGULAR APPROPRIATION BILL.

FIFTH, THE WALLISVILLE LAKE PROJECT IS DESIGNED AS A WATER SUPPLY SOURCE AND SALTWATER BARRIER LOCATED AT THE MOUTH OF THE TRINITY RIVER. THE PROJECT HAS BEEN DELAYED SINCE 1973 BY A FEDERAL COURT ENVIRONMENTAL INJUNCTION. THANKS TO THE EFFORTS OF THIS COMMITTEE PROGRESS TOWARD RESOLUTION IS BEING MADE. I AM HOPEFUL THAT COURT CLEARANCE WILL SOON BE GIVEN AND SUBSEQUENT FUNDING WILL BE PROVIDED.

SIXTH, THE CLEAR CREEK, TEXAS, PROJECT PROVIDES FOR FLOOD CONTROL IN A RAPIDLY DEVELOPING RESIDENTIAL AND COMMERCIAL AREA NEAR HOUSTON. PRECONSTRUCTION PLANNING WILL BE COMPLETED IN FY '84. IT IS MY UNDERSTANDING THAT THE CORPS COULD BEGIN CONSTRUCTION ON THE PROJECT AND THE LOCAL SUPPORTERS ARE INTERESTED IN NEGOTIATING ON THE PROJECT TO

FACILITATE ITS CONSTRUCTION. INDICATIONS ARE THAT $5 MILLION COULD BE UTILIZED TO BEGIN CONSTRUCTION OF THIS IMPORTANT FLOOD CONTROL PROJECT. I WOULD SUGGEST THAT THE COMMITTEE CLOSELY EXAMINE THE POSSIBILITIES OF INITIATING CONSTRUCTION ON THIS PROJECT DURING FY '85.

UNDER "OPERATIONS AND MAINTENANCE", THE TRINITY RIVER TO LIBERTY -- AUTHORIZED AS A SIX FOOT CHANNEL -- HAS NOT RECEIVED MAINTENANCE DREDGING SINCE 1977. MUCH OF THIS DELAY HAS BEEN DUE TO THE ABSENCE OF SPOIL EASEMENTS. IT IS MY UNDERSTANDING THAT AN OUTSIDE FIRM HAS BEEN HIRED TO EXPEDITIOUSLY OBTAIN THE REQUIRED EASEMENTS AND ALL LOCAL GROUPS HAVE JOINED TOGETHER TO ASSURE SUCCESS. IT HAS BEEN SUGGESTED THAT APPROXIMATELY $1 MILLION WILL BE REQUIRED THIS YEAR. SINCE THIS CHANNEL IS LARGELY IMPASSIBLE AND THOUSANDS OF DOLLARS WORTH OF BUSINESS IS BEING LOST, I RECOMMEND FUNDING TO MAINTAIN THE CHANNEL.

II. BUREAU OF RECLAMATION

IN ADDITION TO SUPPORTING FUNDING FOR CORPS PROJECTS, I ALSO STRONGLY SUPPORT THE BUDGET REQUEST FOR BUREAU OF RECLAMATION PROJECTS AND LOAN PROGRAMS.

NEED FOR PUBLIC WORKS PROJECTS

Senator BENTSEN. I want to thank you for the chance to testify before you again, Mr. Chairman.

As we entered into the eighties there was a growing consensus that we were going to have to spend a lot more on public works projects than we had in the seventies because we understood that the infrastructure of this country was really getting into trouble, but, now, we have run into the financial crunches of the eighties and we understand that, whatever we do, we have to do with considerable restraint, more than we had anticipated. We are facing some very tough decisions in these priorities and allocations. Yet, I truly believe that water problems can be compared to the energy crunch of the seventies and will be the resource crisis of the eighties. We are going to have a continued need for investment in water resources for our country.

Texas is a State that has a substantially inadequate surface water supply and is subject to widespread drought but also experiences extensive flooding, sometimes, we think, at the same time, but these kinds of facts, combined with projections of continued rapid growth in Texas, highlight the important role that prudent water resource planning and managment has for the present and future of Texas. It is with these thoughts in mind that I express strong support for the specific Texas projects requested in the President's budget for fiscal year 1985. I also ask this committee to favorably consider some increases that I think have to take place and I have listed those in my detailed statement.

I take this action recognizing the many votes I have cast for cutting back on appropriations since I have been here, but I don't think we can afford to lose the investment of the past. We can't let it fall into disrepair nor can we ignore the needs of the future when it comes to such a critical resource as water. I note the appearance of representatives of groups from Texas, including the Trinity River Authority of Texas, the Gulf Intercoastal Waterway Association, the Trinity Improvement Association, and the Brazos River Navigation District, and I welcome the kind of support that they have given and that they continue to give to these very important projects for our State.

I thank you, Mr. Chairman.

Chairman HATFIELD. Thank you, Senator Bentsen.

Senator Tower and Congressman Brooks, I would only comment that I think the chairman and the two Senators realize that this committee has been very supportive of the Texas projects over the years, and as Senator Bentsen has pointed out we are in a financial crunch in this particular fiscal year, for that matter more than the fiscal year, during this particular period. Many people are always somewhat amazed to find out that the nuclear weapons program is in this appropriation bill—the Department of Energy budget, not in the Defense budget appropriation bill, and, therefore, we are in effect having to share these dollars, the competition for these dollars, with other than energy and water projects. So, if we can get a little help from the Senate Armed Services Committee [laughter] in reducing some of those weapons programs, I can give you further assurance that we will keep these Texas projects. [Laughter.]

Does the Senator from Texas, Mr. Tower, chairman of the Armed Services Committee, wish to respond?

Senator TOWER. Mr. Chairman, let me simply say that as far as nuclear weapons are concerned, they are made in Amarillo, Tex., and that is also a Texas program which I support. But I think the chairman is well aware of the fact that I have already agreed to reduce funding below the President's original request for defense activities. Let me say from an economic standpoint and the standpoint of reduction of revenues, these are enormously important because they improve the economic health of our region which contributes substantially to the tax revenues of the Federal Government and, as such, are an investment. This is a capital investment and, therefore, has greater merit than some other forms of domestic expenditure that might be considered for reductions.

Thank you very much, Mr. Chairman.

Chairman HATFIELD. I defer to the Senator's comments and take them one step further to indicate that in my view these projects which represent the underpinning of the Nation, our infrastructure, are as vital to our national security as weapons production is to our national security program, that the national defense is made up of many components—infrastructure, superstructure, a productive economy, good education, and good housing. All these things are fundamental to our national security.

Senator TOWER. We just want to generate the tax revenues that allow the Federal Government to pay for all these things, Mr. Chairman, so we hope you will consider these projects favorably.

ARKANSAS RIVER BASIN PROJECTS

STATEMENT OF HON. DAVID PRYOR, U.S. SENATOR FROM ARKANSAS

Chairman HATFIELD. Thank you, Senator. We are happy to have you here.

I see Senator Pryor from Arkansas is here. I would like to invite Senator Pryor to come to the table next along with those to testify on the Arkansas River basin projects.

Senator PRYOR. Thank you, Mr. Chairman.

I know you have gone a little bit out of sequence today and out of order and I deeply appreciate your accommodating me.

I would like to make this statement, Mr. Chairman, on behalf of my colleague, Senator Dale Bumpers of Arkansas, and myself. I would also like to say, and I am sure that Senator Bumpers would also agree and would like to be associated with this statement, that we feel very uncomfortable when we see this many Texans in one room together, because we know that is going to bode bad tidings for the rest of us. We are, of course, neighbors of Texas and compete with them in basketball and football and other events and consider them very good friends. We appreciate today, Mr. Chairman, the opportunity to be with you and to testify on behalf of the Arkansas River Basin Interstate Committee and projects of great importance to the committee.

Chairman HATFIELD. May I interrupt a moment to tell you that the numbers here, not one of them or all together have a vote on the committee, but Senator Bumpers from Arkansas does have a vote. [Laughter.]

Senator PRYOR. That is correct, Mr. Chairman.

Chairman HATFIELD. That should make you feel a little more at ease.

Senator PRYOR. I might say in response, Mr. Chairman, that years ago when I was a Member of the House of Representatives with Congressman Brooks who just testified, I was a member of the Appropriations Committee in the House. For the past year I have been a member of the Finance Committee in the Senate and I must say that it is an entirely different perspective depending on whether you are spending money or having to arrange for the money. So, on the committee that I serve we have to raise, as you know, a great deal of this money that our country expends.

We are deeply appreciative, Mr. Chairman, for your allowing us to come and support the budgetary request that our group will make today. We are very well aware of the need to hold down Federal expenditures as we seek to come to grips with our Federal deficit and we view these expenditures as truly a well deserved investment in our future. We appreciate also the fact that the President's budget recognizes the unique needs of the Arkansas River Valley and ask that the committee consider two additional initiatives that were not addressed in the budget.

First, we hope the committee will fund $600,000 to augment the $200,000 appropriated last year to commence studies in the valley relative to recreational, industrial, municipal, and agricultural use of water and for study of related Federal purposes to include flood control and navigation. The Little Rock and Tulsa districts have begun the study with the funds appropriated last year and we hope you will be able to approve this additional funding to continue that very important work.

In addition, Mr. Chairman, we hope the committee will give its attention to the approval of an appropriation of $300,000 for studies of what we call the Dark Hollow project in North Little Rock, Ark. This committee last year provided $100,000 to initiate a study of this project. Planning activity has moved ahead which we believe will lead to the ultimate design and construction, and we think this $300,000 will facilitate progress on this very, very critical project. I would remind the committee that the State of Arkansas, Pulaski County, and the city of North Little Rock, Ark., have now pledged to provide 35 percent of the costs for this project, certainly a good-faith effort on the part of the local governments to pay their fair share for the project.

Again, Mr. Chairman, we sincerely thank you for the opportunity to be on record in behalf of the requests made to you today by the representatives from the five-State Arkansas River Basin Interstate Committee.

Mr. Chairman, knowing that you are a great historian, I would just like to present one final bit of trivia. When I was privileged to be the Governor of our State, I appointed a fine gentleman from Pine Bluff, Mr. Wally Gieringer, as a member of the interstate committee, and today it is my pleasure to say that he will also testify as the chairman of the five-State Arkansas River Basin Interstate Committee before your very distinguished committee.

Thank you, Mr. Chairman.

[The statement follows:]

JOINT STATEMENT OF SENATOR DAVID PRYOR AND SENATOR DALE BUMPERS

Mr. Chairman, we wish to lend our support to the testimony you will receive today from representatives of the Arkansas River Basin Committee. These individuals are hard-working citizens who come to Washington at their own expense to advise us of the ongoing needs in the Arkansas River Valley.

We support the budgetary requests that they make. While we are well aware of the need to hold down Federal expenditures as we seek to come to grips with our Federal deficit. we view these expenditures as a well-deserved investment in our future.

We appreciate the fact that the President's budget recognizes the unique needs in the Arkansas River Valley and ask that the committee consider two additional initiatives that were not addressed in the budget.

First, we hope the committee will fund $600,000 to augment $200,000 appropriated last year to commence studies in the valley relative to recreational, industrial, municipal, and agricultural use of water and for study of related Federal purposes to include flood control and navigation. The Little Rock and Tulsa districts have begun the study with the funds appropriated last year and we hope you will approve this additional funding to continue that important work.

In addition, Mr. Chairman, we hope you will approve an appropriation of $300,000 for studies of the Dark Hollow project in North Little Rock, Ark. This committee last year provided $100,000 to initiate a study of this project. Planning activity has moved ahead which we believe will lead to the ultimate design and construction, and we think this $300,000 will facilitate progress on that important project. I would remind the committee that the State of Arkansas, Pulaski County, and the city of North Little Rock have pledged to provide 35 percent of the costs for this project, certainly a good faith effort on the part of the local governments to pay their fair share for the project.

Again, Mr. Chairman, we thank you for the opportunity to be on record in behalf of the requests made to you today by representatives from the five-State Arkansas River Basin Committee.

Chairman HATFIELD. Thank you, Senator Pryor. It is always a pleasure to have you before our committee on behalf of your constitutents.

We will be very happy to hear from the other gentleman if he wishes to make a brief statement on this project.

STATEMENT OF WALLACE A. GIERINGER, CHAIRMAN, ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. CUNNINGHAM. Mr. Chairman, I am Jacques Cunningham. I am president of the Arkansas River Basin Development Association. It is my pleasure to appear here along with a fine gentleman from Pine Bluff who will be our only spokesman for this five-State Arkansas River Basin Committee.

Chairman HATFIELD. Thank you.

Mr. GIERINGER. Mr. Chairman, it is our pleasure to appear here today before your very distinguished committee.

The interstate committee represents the five great States of Arkansas, Colorado, Kansas, Missouri, and Oklahoma. Our members have been appointed by the respective Governors to present a consensus of the water resource funding needs of these States in the Arkansas River basin.

Many of our committee members have been here before and they represent a dedicated group of people from the five-State area who have worked over the years to improve the Arkansas basin area through development of its water resources. In the interest of time I will not introduce them individually, but with your permission I will ask them to rise and be recognized.

Chairman HATFIELD. We would like to meet them. Would they please rise. [Group standing.]

Thank you very much, gentlemen, for your appearance here today. We take note of your presence.

Mr. GIERINGER. Thank you, sir.

We sincerely appreciate the opportunity to again appear before you and this distinguished committee to express our views concerning funding of our water resource projects and studies.

My testimony will be brief. We have incorporated additional material in the written statement which we have submitted.

The interstate committee recognizes and appreciates your concern for needed fiscal responsibility. We firmly believe Federal water resources investments serve as investment seeds which are a catalyst for self-sustaining investment of private capital in achieving long-term economic growth for our country, and we also believe that the Congress has adequately demonstrated its ability to make wise decisions concerning the Nation's annual investment in water resource programs. Congress, in our judgment and opinion, must retain this decisionmaking responsibility.

As you know, we have experienced a dramatic decrease in the number of active projects and studies in the Arkansas basin over the past years. We are especially concerned that the administration is attempting to impose on congressional authority and responsibility with respect to project selection for authorization and for construction. We ask that Congress review the administration policy of up-front funding by local interests as to its ultimate effect on our Nation's future water resource development projects.

The Arkansas River basin has a number of projects ready for survey planning studies, advanced engineering and design, and also several ready for construction. The projects hold the key to future economic development and growth of the region. We are here today to emphasize the necessity of getting on with that work.

Without going into the project details, Mr. Chairman, that are provided in our written testimony, let me list several of the projects in the five-State Arkansas River basin area which we feel are urgently in need of funding in fiscal year 1985.

FUNDING REQUEST

First, we endorse all project funding included in the Federal budget. Second, we urge special attention to the projects listed in each State request included in our written testimony. Third, we wish to emphasize the urgency of the following projects:

We need funding to continue the urgently needed Arkansas River, Ark., and Okla., municipal, industrial, and agricultural water supply study that Senator Pryor just referred to.

Appropriation also of funds necessary to repair damages incurred at dam 2 of the McClellan-Kerr Arkansas River navigation system which was during an unprecedented flood in December 1982.

The Arkansas basin flood control study certainly needs to continue and we request your continued support toward development of additional hydropower along the McClellan-Kerr Waterway with Corps of Engineers control of design, construction, and operation.

In addition, let us emphasize the need for the following projects: In Arkansas. Fourche Creek and Dark Hollow; in Colorado, the Fryingpan and Fountain Creek flood control project; in Kansas, Douglas Lake and Halstead; in Kansas and Oklahoma, the Verdigris River and Caney River projects; in Missouri, the County Line Lake, the White River basin reservoir, and the Monett 205 project; and in Oklahoma, the Deep Fork, Ark., basin chloride control, Mingo Creek flood control, Seward Lake, Arcadia Lake, Sand Lake, and Big and Little Sallisaw projects.

Our interstate committee also urges the Congress to appropriate the full necessary funding for operation and maintenance of Corps of Engineers projects. We fear that further conversion of Corps activities to contractor provided could seriously impair the Corps' ability to maintain a mobilization potential as well as to provide for our national infrastructure needs, especially during times of emergency and natural disasters.

Mr. Chairman, on behalf of the interstate committee, I thank you for the opportunity to appear here today, and for your consideration of our requests. We ask that this committee, as well as the Congress as a whole, continue to provide the leadership it has in the past in determining whether or not our water resources programs are adequate.

By all reports water or the lack of it is our Nation's most pressing natural resource concern for the years ahead. We must move forward in our water development programs.

On behalf of the interstate committee, thank you for your concern, for your efforts, and your consideration.

Chairman HATFIELD. I thank you gentlemen for you presence and your statement. We appreciate it.

[The statement follows:]

STATEMENT OF WALLACE A. GIERINGER, CHAIRMAN, ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

I am Wallace A. Gieringer, Pine Bluff, Arkansas, Chairman and spokesman for the Arkansas River Basin Interstate Committee. It is our pleasure to appear here today before your very distinguished Committee.

Our Committee represents the five great states of Arkansas, Colorado, Kansas, Missouri, and Oklahoma and its members have been appointed by our respective Governors to present a consensus of the water resource funding needs of these states in the Arkansas River Basin.

Many of our Committee members have been here before and they represent a dedicated group of people from the five-state area who have worked over the years to improve the Arkansas Basin area through development of its water resources. In the interest of time, I will not introduce them individually; they are listed in our written statement, but I would ask that you allow them and other citizens who have accompanied us here today to stand and be recognized.

All of us sincerely appreciate the opportunity to again appear before this distinguished committee and express our views concerning funding of our water resource projects and studies.

My testimony will be brief and we have incorporated additional material in the written statement which we have submitted.

The Interstate Committee recognizes and appreciates your concern for needed fiscal responsibility. We firmly believe Federal water resource investments serve as "investment seeds" which are a catalyst for self-sustaining investment of private capital in achieving long-term economic growth, and we also believe the Congress has adequatley demonstrated its ability to make wise decisions concerning the nations annual investment in water resource programs. Congress must retain this decision making responsibility.

As you know, we have experienced a dramatic decrease in the number of active projects and studies in the Arkansas Basin over the past years. We are especially concerned that the Administration is attempting to impose on Congressional authority and responsibility with respect to project selection for authorization and construction. We ask that Congress review the Administration policy of "up front" funding by local interests as to its ultimate effect on our nation's future water resource development.

The Arkansas River Basin has a number of projects ready for survey planning studies, advanced engineering and design and also several ready for construction. The projects hold the key to future economic development and growth of the Region. We are here today to emphasize the necessity of getting on with the work.

Without going into the project details that are provided in our written testimony, let me list several of the projects in the five-state Arkansas River Basin that we feel are urgently in need of funding in Fiscal Year 1985.

First, we endorse all project funding included in the Federal Budget. There is precious little. Second, we urge special attention to the projects listed in each State request included in our written testimony. Third, we wish to emphasize the urgency of the following projects:

> Funding to continue of the urgently needed "Arkansas River, Arkansas and Oklahoma Municipal, Industrial and Agricultural Water Supply Study";
>
> Appropriation of funds necessary to repair damages incurred at Dam 2 of the McClellan-Kerr Arkansas River Navigation System resulting from the December, 1982, flood;
>
> Your continued support toward development of additional hydropower along the McClellan-Kerr Waterway.

In addition we emphasize the urgency of the following projects:

- Fourche Creek Flood Control - Arkansas
- Dark Hollow Project - Arkansas
- Fryingpan - Arkansas Project - Colorado (BR)
- Fountain Creek Flood Control - Pueblo, Colorado
- Douglas Lake - Kansas
- Halstead, Kansas Flood Control
- Verdigris River - Kansas-Oklahoma; Caney River - Kansas-Oklahoma
- County Line Lake - Missouri
- White River Basin Reservoir - Missouri
- Monett 205 Project - Missouri
- Deep Fork (Poteau) Comprehensive Study - Oklahoma
- Arkansas Basin Chloride Control - Oklahoma-Kansas
- Mingo Creek Flood Control - Oklahoma
- Seward Lake - Oklahoma (BR)
- Arcadia Lake - Oklahoma
- Sand Lake - Oklahoma
- Big & Little Sallisaw - Oklahoma

The Interstate Committee also urges the Congress to appropriate the full necessary funding for operation and maintenance of Corps of Engineers projects. We fear that further conversion of Corps activities to "contractor provided" could seriously impair the Corps capability to maintain a mobilization potential as well as to provide for our national infrastructure needs, especially during times of emergency and natural disasters.

On behalf of the Interstate Committee, I thank you for the opportunity to appear here today, and for your consideration of our requests. We ask that this Committee, as well as the Congress as a whole, continue to provide the leadership it has in the past in determining whether or not our water resources programs are adequate.

There are still many problems that are not being addressed, and many solutions that are still being sought. We must move forward in our water development programs --- or we will soon be inundated by our lack of water.

THE ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

FROM ARKANSAS:

W. A. Gieringer, Pine Bluff-Jefferson County Port Authority,
Pine Bluff, AR - (State Chairman)(Chairman of Interstate Committee)
Wayne Bennett, Farmer and Businessman, Lonoke, AR
Charles Maynard, V.P., Union National Bank of Little Rock,
Little Rock, AR
Douglas W. Parker, Attorney, Ft. Smith, AR
Charles Steel, Sr., V.P., Arkansas Power and Light Company,
Little Rock, AR

FROM OKLAHOMA:

Houston Adams, President, Bank of Tulsa, Tulsa, OK -
(State Chairman)
E. R. Albert, Jr., Albert Equipment Company, Tulsa, OK
Robert S. Kerr, Jr., Oklahoma Water, Inc., Oklahoma City, OK
Harold B. Scoggins, Muskogee, OK
Fred G. Turner, Consultant, McAlester, OK

FROM KANSAS:

James O. Foster, Public Affairs Coordinator, Boeing Military
Airplane Company, Wichita, KS - (State Chairman)
Roger Brown, President, Home National Bank, Arkansas City, KS
Frank W. Liebert, Attorney, Coffeyville, KS
Taylor Peckham, Peckham Insurance Agency, Augusta, KS
Arthur T. Woodman, Woodman-Architects, Wichita, KS

FROM COLORADO:

Charles L. Thomson, General Manager, Southeast Colorado Water Conservancy District, Pueblo, CO - (State Chairman)
Lee H. Hancock, The High Line Canal Co., Rock Ford, CO
John Javernick, Farmer and Rancher, Canon City, CO
William McDonald, Director, Colorado Water Conservation Board, Denver, CO
Ray D. Nixon, Colorado Springs, CO

FROM MISSOURI:

Gale A. Graham, Realtor, Charles Burt Inc., Realtors, Joplin, MO - (State Chairman)
Ted B. Evans, Southwest Missouri Bank, Carthage, MO
Fred A. Lafser, Director, Department of Natural Resources, Jefferson City, MO
Douglas Mahnkey, Attorney, Forsyth, MO
R. Layne Morrill, Realtor, Shepherd of the Hills Realty, Kimberling City, MO

STATEMENT OF WALLACE A. GIERINGER, CHAIRMAN, ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of the Committee, my name is Wallace Gieringer. I serve as Executive Director of the Pine Bluff-Jefferson County Port Authority and Arkansas Chairman of the Interstate Committee. Other Committee members representing Arkansas are Messrs. Wayne Bennett, farmer from Lonoke; Charles Maynard, banker from Little Rock; Douglas W. Parker, attorney from Fort Smith; and Charles L. Steel, electric utility executive from Little Rock. We fully endorse the statement presented to you today by the Chairman of the Arkansas River Basin Interstate Committee.

The Arkansas Committee recognizes and appreciates your concern for needed fiscal responsibility. Let us identify certain projects vital to the economic well-being of our area. We recommend:

* all funding for the Corps of Engineers which has been included in the President's budget;

* appropriation of funds necessary to repair damages incurred at Dam 2 of the McClellan-Kerr Arkansas River Navigation System resulting from the December 1982 flood;

* funding to continue of the urgently needed "Arkansas River, Arkansas and Oklahoma Municipal, Industrial and Agricultural Water Supply Study";

* your continued support toward development of additional hydropower;

* continuation of authority for the Arkansas River Navigation Project; and

* preservation of the Corps of Engineers operational capabilities.

To be specific, the President in his 1985 Budget proposal has included funds for Clarksville and Fourche Creek planning studies, construction activities on the McClellan-Kerr Navigation System and the operation and maintenance of the McClellan-Kerr System. We support these items wholeheartedly. In addition we urge your full support of State Water Planning under Section 22 and request that funds for the Arkansas State Water Plan be fully funded at the $200,000 a year level.

As we discussed with you last year, the accident at Dam 2 required extensive efforts to repair the damage. This work should be completed this summer. We urge you to favorably respond to the Corps' requests for construction needed to insure the safety of that structure as well as other structures on the system. It is our view that the accident was caused by an Act of God and could not have been anticipated, and accordingly should be paid for by the Government.

Last year you funded a portion of the urgently needed study on the use of Arkansas River water to meet future municipal, industrial and agricultural water supply needs. As a result, the Corps has been fully funded for the preparation of a reconnaissance report this year and in FY 85. We urge you to now provide funds to be utilized by the Little Rock and Tulsa Districts to initiate the detailed feasibility portion of this needed and essential study in FY 1985.

The Corps in response to the authorization from Congress has demonstrated that adding hydropower to low-head locks and dams on the Arkansas River is feasible and noncontroversial. We believe it is absolutely essential that the Corps of Engineers control the design, construction and operation of any hydroelectric facilities added to that system to preclude adverse effects on navigation and to preserve the operational integrity of the McClellan- Kerr Arkansas River Navigation System. Because of the energy conservation advantages of hydropower we urge you to provide funding for the detailed planning studies on these projects in FY 1985.

Navigation on the Arkansas has been adversely affected during three of the past four years due to low water levels of the Mississippi River which were not anticipated in the design of the Arkansas. Solutions to this continuing problem are now under study by the Corps Waterway Experiment Station. We urge, therefore, a continuation of the authority for the Arkansas River Navigation Project until problems on the lower portion of the System are resolved.

Another item that concerns us is the recently intensified Commercial Activities Studies being taken in response to OMB's A-76 guidance. We support reasonable efforts to reduce Government activities when the same or better service can be obtained in the private sector at no increase in cost. At the same time, we are concerned that these studies do not fully address the capability that would be lost by the elimination of Government workers. We fear that further conversion of Corps activities to "contractor provided" could seriously impair the Corps capability to maintain a mobilization potential as well as to provide for our national infrastructure needs, especially during times of natural disasters.

The Corps of Engineers recently, in order to be responsive to the needs of local communities, is utilizing the Continuing Authorities Program to address critical needs for small flood control projects at Prairie Creek in Russellville, and Mill Creek, Sunnymede Creek, and May Branch in Fort Smith. We urge the Committee's full consideration of the need for orderly implementation of these projects and encourage you to continue funding for the Dark Hollow CP&E studies.

Concerning cost sharing, we are extremely concerned about the proposals that have been mentioned in the past 3-4 years to cost share in feasibility studies undertaken by the Corps of Engineers. We recognize the need to reduce the burden on the Federal Budget; however, we are very aware of the budgetary problems being experienced in our state. We urge you to go slow in placing the burden on local entities by limiting new cost sharing to limited in-kind contributions, which we believe to be an appropriate compromise on this item.

In closing, we want to thank you for the opportunity to appear before you as you have always been most gracious to us. We want to emphasize that there are known and emerging needs for flood reduction, navigation, power and municipal, industrial, and agricultural water supply facilities. Additionally, in order to obtain benefits from the prior Government investments, operation of the previously completed projects needs to continue. We urge you to appropriate the full capability of the Corps of Engineers in order that those needs may be met.

STATEMENT OF CHARLES L. THOMSON, GENERAL MANAGER, SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT

Mr. Chairman, and members of the Committee, my name is Charles L. Thomson, and I am General Manager of the Southeastern Colorado Water Conservancy District, headquartered in Pueblo, Colorado. I submit this statement today in behalf of the other four members of the Colorado delegation, who were appointed by our distinguished Governor, the Honorable Richard D. Lamm. My colleagues are: Mr. William McDonald, Director, Colorado Water Conservation Board; Mr. John E. Javernick, farmer and rancher from Canon City, representing the Upper Arkansas Basin in Colorado; Mr. Lee Hancock, Superintendent, High Line Canal Company near Rocky Ford, a farmer representing the Lower Arkansas Basin, and Mr. Raymond D. Nixon, retired Executive Director, Department of Public Utilities for the City of Colorado Springs, representing the municipal and domestic water users in the Basin. We are truly honored today, Mr. Chairman, to join our colleagues from the other great States of Arkansas, Missouri, Oklahoma and Kansas who make up the Arkansas River Basin Interstate Committee, and appear before you as a unified group respectfully requesting appropriations for necessary Water Resource Projects in the five States. We are particularly delighted today to be represented before this Committee by our distinguished Chairman, Wallace Gieringer from Pine Bluff, Arkansas.

he Colorado delegation strongly recommends the approval of the appropriations requested by President Ronald Reagan for U. S. Army Corps of Engineers and U.S. Bureau of Reclamation Projects in the State of Colorado. Mr. Reagan recommends the following for continued construction on the Fryingpan-Arkansas Project in FY 1985.

Construction	$7,654,000
O & M	$2,329,000

This will permit the Bureau of Reclamation to complete the second 100 megawatt unit at the Mt. Elbert Pumped-Back Storage Power Plant, which will enable them to meet growing demands for " peaking " power and also completion of the Fish Hatchery just down stream from Pueblo Dam. The completion of this important facility will enable the Colorado Division of Wildlife and Federal agencies to increase the production of fish which will be stocked in streams and lakes throughout Colorado to meet the ever increasing recreational needs.

We also strongly recommend the appropriations requested by the Administration for U. S. Army Corps of Engineers which include:

Arkansas River and Tributaries above John Martin Dam (Continuation of planning and engineering prior to authorization for construction)	
Arkansas River above John Martin Dam (phase 1)	$206,000
Fountain Creek and Tributaries North of Pueblo	$100,000
John Martin Reservoir O & M	$848,000
Trinidad Lake O & M	$540,000

In 1982 the State of Colorado, through the Colorado Water Conservation Board eclared the construction of the Fountain Creek Floodway in Pueblo as a top priority, and the City of Pueblo and Pueblo County have also designated it as one of their most critical needs. This section of Fountain Creek last flooded in 1965, and caused millions of dollars in damage. The entire downtown business area of Pueblo is vulnerable to flooding should the amount of water be just slightly above that experienced in 1965. All three entities have worked closely with the Albuquerque office of the U. S. Army Corps of Engineers in developing the most realistic design at the lowest possible cost, which will provide not only flood protection, but also recreation and scenic uses between periods of flood. We strongly recommend that the appropriate Committees of the Congress of the United States authorize construction of this Project, which has completed all of the pre-construction requirements by the Corps of Engineers.

Mr. Chairman, and members of this distinguished Committee, we again want to thank you for the sincere and dedicated manner in which you have permitted those of us who deal in Water Resource Management on a day to day basis to appear before you to present our recommendations regarding appropriations for Water Resource Projects in the five Arkansas River Basin States. You, and your predecessors, can be very proud of your record in appropriating necessary funds down through the years, which have created dams, reservoirs, waterways, and other means of conveyance for necessary water supplies, which have made the United States great. We hope this philosophy will continue in the years to come.

STATEMENT OF JAMES O. FOSTER, CHAIRMAN, KANSAS GOVERNOR'S INTERSTATE COMMITTEE FOR THE ARKANSAS RIVER BASIN

Mr. Chairman and members of the Committee, my name is James O. Foster. I am Public Affairs Coordinator for the Boeing Military Airplane Company, Wichita, KS and Chairman of the Kansas Governor's Interstate Committee for The Arkansas River Basin. I am pleased to submit this statement today on behalf of myself and the other members of the Kansas Delegation who were appointed to represent the State of Kansas by the Honorable John Carlin, Governor.

My collegues are Mr. Arthur Woodman, Architect, Wichita; Mr. Frank Liebert, Attorney-at-Law, Coffeyville; Mr. Roger Brown, Bank Executive, Arkansas City; Mr. Taylor Peckham, Insurance Executive, Augusta, Kansas. We are honored to join with our colleagues from the great State of Arkansas, Colorado, Missouri, and Oklahoma, in appearing before you today to put forth our views on the appropriations and projects in Kansas and The Arkansas River Basin.

As part of this statement, you will find an appendix which the Delegation wishes to discuss. The Appendix lists those projects in The Arkansas River Basin of Kansas which the Interstate Committee of the State of Kansas requests additional funding. In addition to the budget figure, we have listed our recommended funding to advance or to keep on schedule projects now underway.

There are two particular projects that we wish to call to your attention. One, the Douglass Lake Project was conceived and started as water and flood control project. This Project is badly needed because the cities in the area need the Municipal and Industrial Water Supply (early 1990's). As Wichita, Augusta, Newton, Winfield and Arkansas City continue their growth, water supply will become even more critical.

In recent years, the shortage of rainfall has damaged the present water supply and clearly shows the need for better Municipal and Industrial Water Supply. This project is needed not only for water storage, we believe, but also because farmers with the little rain we get in this area continue to be devastated by floods.

We sincerely hope that you will appropriate funds to the Douglass Lake Project for continued planning.

The Halstead Project is a project of vital importance to not only the City of Halstead but the surrounding area. This project is a flood control project and in past years flooding has extensively damaged the City of Halstead which contains regional hospitals with many specialists. Halstead, although it is not large, provides medical services for a large area surrounding it, as well as serving as a shopping center for a large farming community. Business in the city of Halstead cannot long afford to continue when they are devastated by floods each and every year. The flooding covers the entire downtown area of Halstead and creates problems for water and sewer treatment. The survey, planning and design on this project is completed. The Halstead Project needs authorization and construction money. Legislation now pending before Congress would authorize Halstead to perform inkind services as its match for federal funding. This has been done many times before and would speed this project along.

Mr. Chairman and members of the Committee, we wish to thank you for the sincerely and dedicated manner in which you and your distinguished collegues in the Congress of the United States have dealt with the Water Resources Programs in allowing us to present our views and recommendations to you. We look forward with great expectations and hope for the future of water resource development in Kansas; with your assistance, it can be achieved.

KANSAS INTERSTATE COMMITTEE RECOMMENDATIONS
FISCAL YEAR 1985
ARKANSAS RIVER BASIN IN KANSAS

NAME OF SURVEY OR PROJECT IN KANSAS	CATEGORY **	PRES. BUDGET ($1,000)	REQUESTED FUNDING ($1,000)	PURPOSE OF REQUEST
Arkansas-Red River Basins Solar Energy Investigations OK, TX, & KS	(S)	0	250	Complete reconnaissance phase of study on Red River portion
Arkansas River & Tributaries, Great Gend, KS, to Tulsa, OK (KAW Power Interim)	(S)	183	400	Continue multiple purpose study
Verdigris River, KS & OK (FDP)	(S)	80	100	Continued studies
Arkansas River, Great Bend, KS, to John Martin Dam, C O (FDP)	(S)	0	100	Resume study
Verdigris River, KS & OK Caney River (FDP)	(S)	250	300	Continued studies
El Dorado Lake, KS (FC)	(C)	2,391	2,391	Complete project
Grand (Neosho) River, KS & OK (FDP)	(S)	0	400	Continue study
Halstead Local Flood Protection Project (FD)	(FC)	0	2,000	Authorize project and initiate contruction
Great Bend Local Flood Protection Project (FC)	(S)	0	200	Complete engineering studies
Verdigris River, KS & OK, Mingo Creek (FDP)	(SPE)	400	500	Continue study
Douglass Lake, KS (FC)	P	0	200	Continue planning

S - Surveys
C - Construction
FDP - Flood Damage Prevention
FC - Flood Control

SPE - Continuation of Planning & Engineering Studies
S - Study
P - Planning

STATEMENT OF GALE A. GRAHAM, CHAIRMAN FOR THE STATE OF MISSOURI ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of the Committee, my name is Gale A. Graham, retired banker and active Realtor from Joplin, Missouri, and I appear here today on behalf of the Missouri members of the Arkansas River Basin Interstate Committee. My four colleagues are: Fred A. Lafser, Director, Department of Natural Resources, State of Missouri; Mr. Ted B. Evans, banker from Carthage, Missouri; Mr. Douglas Mahnkey, Attorney from Forsyth, Missouri; and Mr. Layne Morrell, Realtor from Kimberling City, Missouri. We represent the Southwest corner of Missouri which is a part of the Arkansas River Basin. We are honored to join our colleagues from Arkansas, Kansas, Oklahoma and Colorado in appearing before you today and certainly appreciate the time afforded us to testify collectively in support of appropriations for projects along the entire reach of the Arkansas River.

We have a vital interest in the requests which are being submitted today by the Chairman of our Arkansas River Basin Interstate Committee and urge your favorable consideration of those requests. Included in the requests for FY 85 are several projects in Southwest Missouri, among which are: (1) County Line Lake, (2) White River Basin Reservoirs, (3) a 205 project at Monett, Missouri, and (4) a 205 project on Lost Creek and Little Lost Creek at Seneca, Missouri. We support these projects and hope that the requests for funding will be approved.

We further support and urge your favorable consideration of all the projects in the Arkansas River Basin as listed on the appropriation request summary which is being presented today by the Chairman of the Arkansas River Basin Interstate Committee.

We have testified each year for many years concerning the importance of water resource management projects in the Arkansas River Basin and many others which are in the overall interest of the United States, and we feel that adequate appropriations for such projects at this time will provide both immediate and long-range economic benefits for all our citizens.

We are greatly appreciative of your consideration of our needs in the past and solicit your favorable consideration of our requests as presented here today. We sincerely thank you for the opportunity to present them.

STATEMENT OF HOUSTON ADAMS, CHAIRMAN FOR THE STATE OF OKLAHOMA ARKANSAS RIVER BASIN INTERSTATE COMMITTEE

Mr. Chairman and members of the Committee, I am Houston Adams, a banker and Oklahoma Chairman of the Arkansas River Basin Interstate Committee, from Tulsa, Oklahoma.

It is my privilege to present this statement on behalf of the Oklahoma members of the Committee in support of adequate funding for water resource projects in our area of the Arkansas Basin. Other members of the Committee appointed by our Governor, The Honorable George Nigh, are: Mr. E. R. Albert, Jr.; Mr. Robert S. Kerr, Jr.; Mr. Harold B. Scoggins, and Mr. Fred G. Turner.

We, together with representatives of the other Arkansas Basin States, fully endorse the statement presented to you today by the Chairman of the Arkansas Basin Interstate Committee.

We appreciate the opportunity to present our views of the special needs of our State concerning several studies and projects.

We are pleased when the President presented in his budget message for FY 1985 $11,500,000 in funds for the continued construction of Arcadia Lake, Oklahoma, and $2,375,000 for Skiatook Lake.

We support all of the appropriation requests in the Federal Budget for the Arkansas River Basin.

There are twelve projects omitted from the Federal Budget that, in our opinion, are critical to the continued development of water resources in Oklahoma. We are requesting the Committee add the projects and funding outlined herein.

We are concerned that the Administration is attempting to impose on Congressional authority and responsibility with respect to project selection for authorization and construction. In the President's budget request, for just the Corps' Southwest Division alone, there are 12 projects not funded due to lack of "up front" funding by local interests. We suggest Congress review this policy as to its ultimate effect on our Nation's future water resource development.

We appreciate the concern the Subcommittee has shown in the past regarding a drastic reduction in funding water resource development in this country. We support and encourage continued water development in order to assure adequate resources for America's future growth and prosperity.

We thank the distinguished Committee for the opportunity to present our views on Oklahoma's FY 1985 water development requirements.

FY 1985

OKLAHOMA -- In Addition to President's Budget	
Project	Funds Requested To:
1. Arkansas Basin Cloride Control Project	Continue Advance Engineering and Design
2. Arkansas River & Tributaries Hydropower, etc., - W.D. Mayo, Lock & Dam 14	Initiate Engineering and Design
3. Arkansas River Municipal, Industrial, and Agricultural Study	Continue Study
4. Arkansas-Red River Basin Solar Energy Investigation	Continue Study
5. Big and Little Sallisaw Creek Navigation Project	Initiate Construction
6. Candy Lake	Continue Construction
7. Central Oklahoma (Water Supply and Navigation)	Resume Restudy of Economic Features
8. Chikaskia (BR) (OK-KS)	Early Authorization
9. Fort Gibson Lake Addition of Hydropower	Authorization - Initiate Engineering and Design
10. Grand River (Comprehensive Study)	Continue Study
11. Sand Lake	Initiate Planning
12. Shidler Lake	Initiate Advance Engineering and Design

STATEMENT OF BARTLESVILLE AREA (OKLA.) CHAMBER OF COMMERCE

After a passing downpour, frogs float upward from hidden depths, only their eyes breaking the surface of the pool. As Chairman of the Subcommittee on Energy and Water Development many matters hidden, will surface and beckon your attention.

Myself and others are working to control devastating flooding from streams in this area and to insure adequate water supplies for future needs. In this regard the 1983 Water Resources Study for this area points out the need to control flooding on Sand Creek and most important, Sand Creek is the most viable and cost effective source of water to serve Eastern Osage County and Washington County. It is apparent that this area will face a critical water shortage around the year 2000. Accordingly:

1. The City of Bartlesville, whose water system serves from south of Ramona in Washington County 33 miles north to the Kansas line and 23 miles east-west extending more than 12 miles into Osage County, has applied for and received a valid permit for water from Sand Lake.

2. On Monday, March 12, 1984, the Water Resources Committee met with members of the Osage Tribal Council and an understanding of the urgency was recognized and agreement was reached to work jointly to insure that the interest of the Osage Nation and the general public are fully considered as we proceed with this very necessary project.

3. Meetings with representatives of the Corps of Engineers, County and City Commissions and the Water Resources Committee all identify Sand Lake as the most cost effective for water supply.

4. The community is well aware of the problems and Sand Lake Association (Lake of the Osage) will be incorporated in May 1984 to provide a vehicle for community support of the project.

We request you and the Committee to recognize the urgency of this matter by appropriating the necessary funds to begin early planning for this project.

STATEMENT OF CITY AND COUNTY OF MUSKOGEE, OKLA.

On behalf of citizens of the City and County of Muskogee, Oklahoma, we whose signatures appear on the attachment, endorse and approve the action of the Arkansas River Basin Interstate Committee and its members in presenting their requests for appropriations with which to continue development of the natural resources in the Arkansas River Basin.

We also endorse the full program on Public Works as adopted by the Arkansas Basin Development Association.

Both imports and exports have exceeded estimates, since this landlocked area has been connected to the ports of the nation and the world. The Army Corps of Engineers Institute for Water Resources researched the benefits and costs of the $1.2 billion Arkansas River Project and found it produced a realized rate in excess of 13 percent during its first ten years of operation.

Now that studies are complete for the installation of low head hydroelectric production throughout the navigation system, we feel that it is absolutely necessary that the Corps of Engineers control the design, Construction and operation of the facilities in order to eliminate diverse effects on navigation. We further recommend that hydro-electric power construction be deferred until there is a demand for additional electric power usage.

We want to thank the members of this distinguished Committee for the sincere and dedicated manner in which you have permitted those of us who deal in Water Resource Projects on a day to day basis to appear befor you to present recommendations regarding appropriations for the Water Resource Projects in the five Arkansas River Basin States. You can be very proud of your record in appropriating necessary funds through the years. We hope this philosophy will continue in the years to come.

ARKANSAS BASIN DEVELOPMENT ASSOCIATION

INTERSTATE COMMITTEE

April 4, 1984

HEARINGS: Energy and Water Development Subcommittee,
Appropriations Committee

IN ATTENDANCE

Jacques Cunningham - President, Arkansas Basin Development Association; Port Director, Tulsa Port of Catoosa, Catoosa, Oklahoma

James O. Foster - Interstate Committee: Public Affairs Coordinator, Boeing Military Airplane Company, Wichita, Kansas

W. A. Gieringer - Chairman, Interstate Committee; Executive Director, Pine Bluff-Jefferson County Port Authority, Pine Bluff, Arkansas

R. D. "Bob" Nab Holz - Nab Holz Construction Corporation, Conway, Arkansas

Bob N. Jackson - Industrial Development Manager, Public Service Company of Oklahoma, Tulsa, Oklahoma; Chairman, Governor's Waterway Advisory Team.

Jim Lay - Director, Waterways Division, Oklahoma Department of Economic Development, Tulsa, Oklahoma

Col. Charles Maynard (USA Retired) - Interstate Committee; Vice President, Union National Bank of Little Rock, Little Rock, Arkansas

J. William McDonald - Interstate Committee; Director, Colorado Water Conservation Board, Denver, Colorado

Barry McKuin - Winrock Farms, Inc., Morrilton, Arkansas

Harold Scoggins - Interstate Committee; Muskogee, Oklahoma

George Schumacher - Executive Vice President, Union Bank and Trust, Bartlesville, Oklahoma

Ralph Smith - General Manager, Bartlesville Examiner Enterprise, Bartlesville, Oklahoma

Col. Charles Steel (USA Retired) - Interstate Committee; Vice President, Arkansas Power & Light Co., Little Rock, Arkansas

Jack Story - Chairman, Arkansas Basin Development Association: President, Story & Associates, Inc., Tulsa, Oklahoma

Charles L. Thomson - Interstate Committee: General Manager, Southeast Colorado Water Conservancy District, Pueblo, Colorado

Arthur Woodman - Interstate Committee; Woodman-Architects, Wichita, Kansas

Bob Wright - Manager, Muskogee Chamber of Commerce, Muskogee, Oklahoma

STATEMENT OF COL. CHARLES STEEL (RET.), PRESIDENT, ARKANSAS BASIN ASSOCIATION

The Arkansas Basin Association appreciates the opportunity of appearing before your Committee to present a statement for your consideration relative to the further development of the McClellan-Kerr Arkansas River Navigation project for budget year 1985.

My name is Charles L. Steel, Colonel U. S. Army Corps of Engineers, Retired, and presently senior vice president for Arkansas Power & Light, and I address you today as president of the Arkansas Basin Association. In addition, I am a member of the Arkansas River Interstate Basin Committee, the president of which, Mr. Wallace Gieringer, presented testimony to you today in behalf of appropriations for the Arkansas River area. I would like to associate my comments with those of Mr. Gieringer and urge your support of items included in the President's budget for 1985. Congress has been very generous in its reception to the Arkansas Basin Association for over 40 years, and we are most appreciative of your kindness and consideration.

The Basin Association supports the President's budget requests for $50,000 for continuing water studies for flood control and water supply in the vicinity of Clarksville, Arkansas, $11,466,000 for operation and maintenance of locks and dams on the Arkansas River and $2,000,000 for continuing work on the Ozark Lock and Dam for repairs on the inclined turbines installed therein. All of which items are included in the President's budget submission.

The $11,466,000 for operation and maintenance of lock and dams is of particular concern to us as this item includes funds necessary for the dredging of the channel because of high water fallout that occurs from time to time, the care and operation of the locks and dams and the recreational facilities contained thereat.

This amount does not, however, include funds for repairs to Lock and Dam 2, damages that were sustained during the unprecedented floods of December 2, 1982. We would reiterate our belief that the damage suffered at Lock and Dam 2 were the result of intensive rain that led to record flows on a large number of tributaries of the Arkansas River. Such flooding was an act of God and certainly beyond the control of any operators on the system.

Therefore, we believe any costs attributed to the damages sustained by the Lock and Dam are properly a cost of the United States Government and should not be borne by any operators nor should any purported negligence be assigned to them as a result of the flood. Any findings that would lead to assignment of damages to these operators would dramatically increase the costs of insurance for operating on navigable waterways within the United States and would have a very detrimental effect upon the continued growth and operation of our navigable streams.

In this connection, a similar flooding resulting in damages to a navigation structure occurred in early December, 1983, almost at the anniversary date of the Arkansas River Flood, on the Warrior River. Preliminary discussions indicate that this flood and subsequent damage will be ruled by the Corps of Engineers as a result of an "Act of God". We believe the situations are parallel.

The funds for O & M in question do provide for the removal of rock formations in the stream in Pool 7 that has caused depths of less than 12 feet, that is below the design standard, as a result of fallout following high flow and subsequent dropoffs.

The $2,000,000 for continued work on the power plant of the Ozark Dam are to keep these "run of the river" slant turbines operating. There has been considerable trouble with maintaining these on-line. Experience at the Dardanelle Dam has been that the run of the river plants are virtually firm power, 100% of the time and the importance of the power that would be generated by the five 21,000 KW units at Ozark cannot be downgraded in this time of high energy cost in our nation.

I would like to emphasize several points in supplement of Mr. Gieringer's remarks to you. Last year (1984), Congress appropriated $200,000 for studies in the Arkansas River relating to recreational, industrial, municipal and agricultural use of water and for a study of related, traditional federal purposes to include flood control and navigation. It is my understanding that this appropriation was changed several times and ended up amounting to $310,000, equally divided between Little Rock and Tulsa. These studies are under way. Unfortunately, the President's budget this year does not include any money for this most important study. A total of $600,000 additionally is needed to continue the study in 1985, and we ask that you appropriate this amount to move this important study forward toward its ultimate report. This study is needed to answer two very basic questions for the future economic development of the lower Arkansas River Valley: What and where are the total future water consumptive needs of the area and, secondly, where and how can they be met without adverse impact on the previously constructed McClellan-Kerr Arkansas River Navigation Project. The need for this study has been well recognized by all environmental, conservation and developmental groups, and we all agree that we must know the answer to these questions as we seek ways and means of conserving our valuable environmental resources while, at the same time, making necessary and essential provisions for municipal, industrial and agricultural water supply, the building blocks for the future economic well-being of this region.

We would urge the Congress to appropriate the $700,000 included in the President's budget for the Fourche Creek study, flood control problems in the Little Rock area and an additional $300,000 for the very important Dark Hollow flood control project in North Little Rock. Last year the Congress added $100,000 to the President's budget for initial studies on the Dark Hollow project. The $300,000 which the Pulaski County Flood Control Association, Pulaski County, the State of Arkansas and the City of North Little Rock are requesting to be added to the budget will move this project hopefully ahead toward ultimate design and construction. Both the Fourche Creek and the Dark Hollow projects are very important to the safety and welfare of people residing in and around areas of these two cities that are flooded quite often during times of high rain. As has been pointed out, the state, the county and the cities have agreed to furnish 35% of the federal cost excluding recreation for these projects, and monies have already been placed in escrow deposits by the city of Little Rock toward construction of the projects under consideration.

We thank you for the opportunity of being here with you today. We thank you for your past appropriations, and we urge your continuing support of the development of the McClellan-Kerr Arkansas River Navigation and for the specific appropriation requests we have made to you today.

STATEMENT OF COL. CHARLES D. MAYNARD (RET.), GREATER LITTLE ROCK CHAMBER OF COMMERCE

The Pulaski County Flood Control Association and the Little Rock Chamber of Commerce are deeply appreciative of the opportunity of presenting testimony to you today on behalf of needed water resources development in the Arkansas River Valley and in particular in Pulaski County including the cities of Little Rock and North Little Rock.

I am Charles D. Maynard, Colonel, U. S. (Corps of Engineers), Retired, Chairman of the Pulaski County Flood Control Committee, a member of the Arkansas River Interstate Basin, and past President and Chairman of the Board of the Water Resources Congress of America.

The Pulaski County Flood Control Committee and the Greater Little Rock Chamber of Commerce supports fully the testimony of Mr. Wallace Gieringer of the Arkansas River Interstate Basin Committee and would urge the appropriation of funds included in the President's budget for 1985, for which the testimony of Mr. Gieringer requested favorable consideration.

In particular, we would urge your support of two projects in the Little Rock area; the first of these projects relates to the flooding conditions on Fourche Creek in Little Rock. Last year the Congress appropriated $700,000 for continuing engineer studies and design of the Fourche Creek project in Little Rock. The President's budget for 1985 includes an additional $700,000 for that study. We urge favorable consideration of this request.

> As has been pointed out in the past the solution to the flooding problem in Fourche Creek would relieve the threat of death dealing floods in the city of Little Rock as have occurred in the past. In connection with the Fourche Creek project, the state of Arkansas, Pulaski County, and the city of Little Rock have pledged by resolution to furnish thirty-five percent of the project cost for this project. Additionally, the city of Little Rock has placed in escrow some $7,000,000 in funds to cover their obligations. This money continues to grow in value because of interest and accrual and thus guarantees local participation.

Last year the Congress appropriated $100,000.00 for studies of the Dark Hollow project in North Little Rock. This flooding condition has been in this area for a long time and is very detrimental to the development of this large area of the city and is a safety hazard for the people who live in this vicinity. As in the case of the Fourche Creek project just discussed, the state of Arkansas, Pulaski County and the city of North Little Rock have pledged to provide thirty-five percent of the costs for this project. An additional $300,000 is needed for this year to continue the work commenced with the $100,000 Congress appropriated last year. Planning activity has moved ahead which we believe will lead to the ultimate design and construction of a favorable project. We would urge that you appropriate this $300,000, by adding it to the President's budget. Last year you in the Congress in its wisdom did put $100,000 into the budget and we urge that you include $300,000 this year.

In addition, we urge favorable action by the Congress to add $600,000 to the appropriation bill for FY1985 to follow up the $200,000 appropriated last year to commence studies in the Arkansas River relating to recreational industrial, municipal and agricultural use of the water and for study of related federal purposes to include flood control and navigation. With the funds that were appropriated last year, the Little Rock and the Tulsa districts are working on this study. To continue this study would require an appropriation by the Congress. We urge that you include this $600,000 for this important area.

We appreciated the opportunity of being here today and to present these requests to you. The Congress in its wisdom has been very perceptive in providing for navigation and flood control, recreation and power in the Arkansas River area. The requests we make today are important for the continuation of the important work that has been underway in our area.

STATEMENT OF REED W. THOMPSON, MAYOR, NORTH LITTLE ROCK, ARK.

I am Reed Thompson, Mayor of the City of North Little Rock, Arkansas, and I appreciate very much the opportunity of being here today to offer a statement on behalf of my city for a much-needed flood control project in North Little Rock.

We seek an appropriation by addition to the President's 1985 Budget of $300,000.00 for continuing work on the Dark Hollow Drainage Project in North Little Rock. Last year, the Congress added $100,000.00 to the President's Budget to start this study and design work. Planning activities have moved ahead which, hopefully, will lead to the ultimate design and construction of this important, and much needed, project in our area. The $300,000.00 we request for 1985 will move the project study ahead and, hopefully, in 1986, with the addition of some $400,000.00, this project study will be completed, a favorable report rendered and the project will be ready to go into construction. The $300,000.00 requested will keep the project on schedule.

We appreciate the opportunity of being here today and presenting this testimony to the Congress. I would like to associate myself with Mr. Wallace Gieringer, Chairman of the Arkansas River Interstate Basin Committee, Colonel Charles Steel, U.S.A. Retired, President of the Arkansas Basin Association and Colonel Charles D. Maynard, Chairman of the Pulaski County Flood Control Assn. and support their testimonies given to this committee. I join with them in expressing appreciation for the past consideration given to us on behalf of appropriations in the Arkansas River Valley and, in particular in the vicinity of Little Rock, and would urge your favorable consideration for our requests

STATEMENT OF DON VENHAUS, PULASKI COUNTY, ARK., JUDGE

I am Don Venhaus, County Judge of Pulaski County, Arkansas. I appear today to support appropriations for needed flood protection in Pulaski County.

I refer specifically to the Fourche Creek project on the Little Rock side and the Dark Hollow project on the North Little Rock side. Last year the Congress appropriated $700,000 for continued engineering and design on the Fourche Creek project and $100,000 for studies on the Dark Hollow project. The President's budget this year includes $700,000 for the Fourche project. We urge your approval and inclusion in the budget of this amount.

This year, the President's budget does not provide any funds for the Dark Hollow project. Last year it did not, but the Congress appropriated $100,000 to initiate studies to overcome the flooding problems in the North Little Rock area of Dark Hollow. We urge you to add to the budget, some $300,000 for continuing work on the Dark Hollow project in order that this important project may be designed and brought to construction.

Last year, Pulaski County in conjunction with the State of Arkansas and the cities of Little Rock and North Little Rock, respectively, by resolution, pledged to provide 35% of the project costs for these two projects. These resolutions still stand and we urge your appropriation to match our promised funds in order to make these needed flood control projects a reality.

Thank you very much for the privilege of being here today and presenting this request.

FREEPORT HARBOR, TEX.

STATEMENT OF J.C. BROCKMAN, CHAIRMAN, BOARD OF NAVIGATION AND CANAL COMMISSIONERS, BRAZOS RIVER HARBOR NAVIGATION DISTRICT, FREEPORT, TEX.

ACCOMPANIED BY:

PETER R. SCHAFF, GENERAL MANAGER, BRAZOS RIVER HARBOR NAVIGATION DISTRICT

LELAND B. KEE, GENERAL COUNSEL, BRAZOS RIVER HARBOR NAVIGATION DISTRICT

Chairman HATFIELD. I am going to proceed to taking a witness out of order in order to accommodate Mr. J.C. Brockman who has a plane to catch and then we will get back to Mr. Vance.

Mr. BROCKMAN. Mr. Chairman, members of the subcommittee, my name is J.C. Brockman, chairman of the board of commissioners, Brazos River Harbor Navigation District. With me are Peter Schaff, general manager, and Leland Kee, general counsel, of the port.

Mr. Chairman, I want to express our appreciation and thanks for your support these many years for having the Freeport project included in your fiscal year 1984 committee report.

Because of the continuing long delay in funding this project, we are now earnestly soliciting you and your committee to use whatever procedures are available to you to cause this project to be funded as a new start in fiscal year 1984 with continued funding in fiscal year 1985.

In our written testimony we have three pictures. We believe a picture is worth a thousand words. We are going to give you 3,000 words of testimony in 3 pictures.

We have had deterioration of the Freeport jetties as these photographs will show which were taken last Thursday. Hurricane Alicia caused breakup and with 8 feet of standing up the channel was closed until the Corps could dredge it. The entrance is only 200 feet wide at bottom depth and had not been improved in 60 years. The channel allows only one-way traffic for deep-water vessels.

The many bins in the channel limit the vesseling to 750 feet. The shallow depth makes shipping costs more expensive. This project will save shippers an estimated $37 million a year. That is based on the Corps' 1977 estimated dollars. The Freeport area has experienced economic recession as four plants have been closed. The project would have a favorable impact on jobs, economic growth, and balance of payments.

You have recognized the project on its merits. The Corps of Engineers has placed the 45-foot project as the highest benefit-cost ratio of all their recommended water projects. With worldwide energy conflicts, the Iran-Iraq tensions in the Strait of Hormuz, the project is of vital concern for national security.

Thirty-six percent of the DOE strategic petroleum reserve is stored at Bryan Mound which is only 3 miles from the port. One hundred percent of the Bryan Mound input comes through this port. About 80 percent of the Bryan Mound reserve drawdown will depend on the

Freeport channel. Gentlemen, if that channel and jetties collapse, we have serious problems.

Mr. Chairman, and members of the committee, let me say again we thank you for your continuing support but we must have timely action for the good of our Nation. For these reasons we respectfully request that the subcommittee use the procedures available to it to cause the Freeport project to be funded as a new start in fiscal year 1984 with continued funding in fiscal year 1985.

Thank you, Mr. Chairman.

Do you have any questions?

Senator ABDNOR [presiding]. Has this been reported?

Mr. BROCKMAN. Yes. It has been reported by the full committee.

Senator ABDNOR. Do any of the other gentlemen wish to add anything?

Mr. BROCKMAN. We have nothing further.

Senator ABDNOR. The chairman is sorry he had to leave.

As a member of the committee, I am happy to be here.

We thank you very much for your testimony.

Mr. BROCKMAN. Thank you.

[The statement follows:]

STATEMENT OF J.C. BROCKMAN, CHAIRMAN, BOARD OF NAVIGATION AND CANAL COMMISSIONERS, BRAZOS RIVER HARBOR NAVIGATION DISTRICT

Mr. Chairman and members of the subcommittee, the Brazos River Harbor Navigation District, the local non-Federal sponsor of the Freeport Harbor, Tex., channel modification (45-foot project), now under consideration, respectfully urges that funds be appropriated for the commencement of this project.

Mr. Chairman, we were most pleased and encouraged when the Freeport project was included in H.R. 3958 as a new start in fiscal year 1984. Again, the inclusion of the Freeport project in the report of the Senate Appropriations Subcommittee on Energy and Water Development gave us high hopes that we were on our way. We are most disappointed that a final appropriation bill for fiscal year 1984 has not been passed by the Congress.

Mr. Chairman, because of the continuing long delay in funding this project, we urge you to use whatever procedures available to you to cause this project to be funded as a new start in fiscal year 1984 with continued funding in fiscal year 1985.

The merits as well as the urgency of the Freeport project have been recognized and well documented in previous hearings before this committee. We review them here for the records.

DETERIORATED JETTIES, NARROW, SHALLOW CHANNEL POSE SAFETY HAZARDS

A narrow jetty entrance leading into Freeport Channel provides only a 200-foot authorized channel width at bottom depth. This narrow entrance (which has not been improved for over 60 years) restricts entry into the port to ships of a maximum length of 750 feet regardless of tonnage or draft. These limitations also create multiple threats to safe navigation. Due to the shallow depth and narrow width of the channel, ships must operate and maneuver at dead slow speeds, which causes a loss of effective rudder control. Currently, deepwater traffic is limited to one-way passage, with no passing or meeting in channels inland from the jetties. Widening of the jetty entrance is essential to increasing the width and depth of the channel and removal of safety hazards.

NAVIGATIONAL LIMITATIONS

In addition to improving safety, a wider, deeper channel will provide more economic means of transportation. Presently, many vessels cannot navigate the shallow 36-foot channel. Many others can only meet the draft requirements if they call on Freeport light-loaded as they traverse the gulf coast. This frequently requires out-of-sequence scheduling and increases the shipping costs in and out of Freeport. The appropriation which we seek for the improvements will cure these defects. The Corps of Engineers has estimated that this project will save shippers over $37 million per year in shipping costs (in 1977 dollars).

NATIONAL SECURITY SERVED BY THIS PROJECT

The Department of Energy SPR project at Bryan Mound is located approximately 3 miles from the Freeport Channel. One hundred percent of the Bryan Mound petroleum reserves is arriving via the Freeport Channel. Thirty-six percent of the Nation's SPR storage based on current allocation will be at Bryan Mound. Approximately 80 percent of Bryan Mound SPR emergency distribution capability is dependent on the Freeport Channel. If the SPR program is a justifiable undertaking, it is justifiable by reason of its importance to national security. The accomplishment of the proposed Freeport Channel improvement is essential to assure the availability of a safe and efficient channel which is vital to this phase of our national security.

SAFE HARBOR FACILITIES

Beyond benefits included in the COE calculation, we believe there are other substantial advantages to the project:

(*a*) Safe harbor facilities are necessary for the growing number of commercial and industrial users of the port, including a very sizable gulf coast shrimping fleet based in Freeport.

(*b*) Environmental damages is minimized by using Freeport's unique geographical configuration. Since the port fronts directly on the coast, delicate marine ecosystems found in bays and estuaries are not disturbed by ship traffic and the appurtenances of a port facility. This project has the active support of State and local environmentalists. Seriously eroded beaches will also benefit from the beach restoration work that this project includes. Local environmentalists have strongly favored this enhancement activity.

The building of a new north jetty and the dismantling of the present north jetty would result in: (1) The accomplishment of a usable increment of the total project; (2) the elimination of the probability of the old jetty collapsing under the hurricane tides that frequent the Gulf of Mexico; (3) the elimination of a navigation hazard that the jetty entrance poses for modern-day larger and longer vessels that cannot navigate the narrow channel entrance with a reasonable degree of safety; and (4) the accomplishment of an indispensable prerequisite to the dredging of a wider, deeper, safer, and more efficient channel.

CONCLUSION

The 45-foot project for Freeport Harbor is the most cost-effective project nationwide presently recommended by the Corps of Engineers. Navigation efficiency and safety will be greatly improved. A nationally important energy/chemical manufacturing complex will be assured of a critical transportation link. The local economy and the national balance of payments will be strengthened significantly. The Nation's emergency/defense preparedness capability will be improved.

Timely completion of this project is necessary to capture these benefits. For these reasons, we respectfully request that the subcommittee use the procedures available to it to cause this project to be funded as a new start in fiscal year 1984 with continued funding in fiscal year 1985.

LIST OF WITNESSES SUPPORTING 45-FOOT CHANNEL IMPROVEMENT PROJECT

J. C. Brockman, chairman, Board of Navigation and Canal Commissioners, Brazos River Harbor Navigation District, Freeport, Tex.

Peter R. Schaff, general manager, Brazos River Harbor Navigation District, Freeport, Tex.

Leland B. Kee, general counsel, Brazos River Harbor Navigation District, Freeport, Tex.

TRINITY RIVER BASIN PROJECTS, TEXAS

Senator ABDNOR. The next witness is Mr. Danny Vance, general manager of the Trinity River Authority of Texas and Trinity Improvement Association and group. I believe we have several of your members at the table. Any others?

Mr. VANCE. Yes, Mr. Chairman. We have a number of people with us today and a number who have some very, very brief testimonies I would like to offer. I would like to defer, if I may, sir, to Mr. Berl Godfrey who is the chairman of the board of Trinity Improvement Association and he will introduce the others.

Senator ABDNOR. Very fine. You go ahead.

STATEMENT OF BERL E. GODFREY, CHAIRMAN OF THE BOARD, TRINITY IMPROVEMENT ASSOCIATION

Mr. GODFREY. Mr. Chairman and members of the committee, my name is Berl E. Godfrey of Fort Worth, Tex., and I am chairman of the board of the Trinity Improvement Association. This is a nonprofit organization of citizens from throughout the Trinity basin dedicated to the prudent development and use of water and soil resources.

You have heard testimony from our congressional representatives concerning some of our needs. Our delegation of 61 people has traveled here at their own expense to present additional testimony in support of water projects vital in our area. It will be my duty to coordinate the testimony of this group, diverse in background but united in purpose.

May I digress, with the permission of the chairman, to stress the words "united in purpose." I would like the record to observe that Mr. Russell Perry, a citizen of Dallas, is president of the association and I from Fort Worth. We have buried the hatchet. [Laughter.]

Senator ABDNOR. Good.

Mr. GODFREY. The strong economy and quality of life in the Trinity basin derives significantly from the development of surface water supplies, flood control, and recreation opportunities. The Federal investments in these water projects have proven to have been among the most cost effective of all expenditures of public funds, and I commend this body for its support over a long period of years.

The continuing growth in population and industrial development which is occurring in our part of the State has placed a very heavy demand on existing water supplies. As lignite mining opens up in the mid-Trinity basin, there will be yet more demands for water to help satisfy the Nation's energy needs and reduce the demand on oil and gas reserves. The financial burden of providing water needs grows heavier each year.

We request this committee's support of funding for the 14 Corps of Engineers and 1 Bureau of Reclamation projects listed on the summary page of this presentation. We also have three administrative requests concerning the Trinity River project, the Wallisville project, and Cooper Lake. These will be addressed in statements following my remarks.

We are extremely grateful for the time which this committee has graciously allotted us for this presentation. Please accept our appreciation for the job you have done in these difficult times, maintaining sound water development programs that have proved their economic and environmental soundness.

Mr. Chairman, I wish to submit for the record a complete list of our delegation appearing here today and copies of the testimony to be given by our group.

Senator ABDNOR. Fine. Without objection, we will make those documents a part of the record following the oral testimonies.

Mr. GODFREY. Again, thank you for allowing us to appear before this committee, and we urge your favorable consideration of our requests.

With these remarks, I would like to call on a few members of the delegation who will speak briefly in the areas in which they have peculiar interest.

The first speaker is the honorable James Riddlesperger, mayor pro tem of the city of Denton.

Senator ABDNOR. Mayor Riddlesperger.

RAY ROBERTS LAKE, TEX.

STATEMENT OF JAMES RIDDLESPERGER, MAYOR PRO TEM, DENTON, TEX.

Mr. RIDDLESPERGER. My name is James Riddlesperger and I am a mayor pro tem for the city of Denton. Let me express my appreciation as well as that of Mayor Richard Stewart and the Denton City Council for your committee's continued support for the Ray Roberts Lake project.

I am here today to represent the interests of the cities of Dallas and Denton in the Ray Roberts Lake project. Since we last appeared before this committee in April 1983, construction of the dam and outlet works has progressed very rapidly as has the acquisition of project lands. Due to good Texas weather and adequate funding, the contract is ahead of schedule with over 60 percent of the construction complete. The Corps anticipated construction for this phase of the project is to be complete and operational by late 1986 or early 1987.

The cities of Dallas and Denton contracted with the Corps of Engineers for design and construction of this project because of the 76 million gallons per day water supply and recreational opportunities it will provide to many communities throughout our region. As you are aware, the Sunbelt has experienced rapid growth in the last few years and the Dallas-Denton area has been among its fastest growing areas. May I say parenthetically we are No. 4, Denton County is, in the whole of the United States in growth during the last 3 or 4 years. In order to keep up this growth, the water supply and the recreational opportunities along with the flood protection offered by this project are vitally important. For this reason, the cities of Dallas and Denton request that the $58 million allocated in President Reagan's 1985 budget for the Ray Roberts Lake project be accepted and supported by this committee.

With the $58 million for 1984, this project can remain on schedule and dam construction, road and railroad relocations, design of recreational facilities, and land acquisition can continue. Any cutbacks could mean delay in the timely completion of this project which could hamper us in meeting the water needs of our region. Also, any slowdown would delay the Federal Government getting its money back since the local sponsors do not start repayment of the loan until the project is complete.

I urge your careful consideration of the administration's budget request and your support of full funding for the Ray Roberts Lake project. Thank you for your continued oooperation in this matter. I appreciate and thank you for the opportunity to address you today.

Thank you very much.

Senator ABDNOR. Thank you, Mayor Riddlesperger. I have great, great respect for Congressman Roberts as chairman, when I was in the House, of the Veterans Committee, where I served with him, as well as serving on the Public Works Committee with him. He is a great person.

Mr. PATTON. He has thought enough to move over to Denton to live with us.

Mr. GODFREY. Next is Mr. Greg Patton, president of the Joe Pool Lake Planning Council

JOE POOL LAKE, TEX.

STATEMENT OF GREG PATTON, PRESIDENT, JOE POOL LAKE PLANNING COUNCIL

Mr. PATTON. Thank you very much, Mr. Chairman, for the time you have given us here to present this testimony.

I am Greg Patton from Cedar Hill, Tex., and I currently serve as president of the Joe Pool Lake Planning Council. Our ad hoc citizens organization has provided active support for this most important project for over 20 years now. With the assistance of this committee, our efforts in recent years have been most gratifying as we have watched the lake being constructed. A total of $18.1 million will be adequate to support Joe Pool Lake construction during fiscal year 1985. Excellent progress is being made by the contractor and impoundment of water is planned for 1986.

Phenomenal growth in the vicinity of the future lake makes this water supply project more important every day. I should note that the TRA, local sponsor for the Joe Pool Lake, has begun engineering studies related to development of a regional treated water system.

We sincerely appreciate this committee's historic support for Joe Pool Lake and urge your approval for an $18 million appropriation for fiscal year 1985.

Thank you for your attention.

Senator ABDNOR. Thank you, Mr. Patton.

Mr. GODFREY. It is my pleasure now to introduce Mr. Blake Gillen.

Senator ABDNOR. Mr. Gillen, we welcome you to the committee.

STATEMENT OF BLAKE GILLEN, PRESIDENT, TRINITY RIVER AUTHORITY OF TEXAS

Mr. GILLEN. Thank you.

Mr. Chairman and members of the subcommittee, I am Blake Gillen of Corsicana, Tex. I am a member of the board of directors of the Trinity River Authority of Texas (TRA) representing Navarro County and currently serve as the authority's president.

Mr. Chairman, I have a letter from Texas Governor Mark White and statement of the Texas Department of Water Resources which support water resource development in the Trinity basin that I would like to submit for the record.

Senator ABDNOR. Fine. Without objection, they will be made part of the record.

[The letter and statement follow:]

LETTER FROM GOV. MARK WHITE OF TEXAS

MARCH 23, 1984.

DEAR SENATOR HATFIELD: Please consider the attached testimony with regard to certain public works projects administered by the U.S. Corps of Engineers in the Trinity River basin of Texas as being the official position of the State of Texas.

The Texas Department of Water Resources is primarily responsible for proper development and conservation of our water resources and, in that regard, carefully examines and analyzes each project. I concur with their findings and recommendations and trust the State's testimony will be carefully considered by the committee.

Thank you for your consideration.

Yours truly,

MARK WHITE,
Governor of Texas.

STATEMENT OF CHARLES E. NEMIR, EXECUTIVE DIRECTOR, TEXAS DEPARTMENT OF WATER RESOURCES

The Texas Department of Water Resources respectfully submits project testimony regarding Corps of Engieers projects in the Trinity River basin of the State of Texas.

Responsibility for statewide planning and development of water resources rests with the Texas Department of Water Resources. The department has been designated as the State agency to cooperate with appropriate agencies of the Federal Government and with other State and local agencies in matters relating to water resource development. In order to assure orderly development of the State's water resources, the department has formulated and adopted a comprehensive statewide Texas water plan, which under Texas statutes serves as a flexible guide for present and future water development in Texas.

The plan indicates the need for specific projects, including alternatives, to meet the State's water needs and to provide National, State, and regional economic growth and stability. The department of water resources maintains a continuing planning program in order to address changing economic, social, hydrologic, and environmental conditions in the State. The projects included in this statement are considered as integral elements in the State's present and future water resource development program.

GRAPEVINE LAKE REHABILITATION

A total of $4.2 million is included in the President's fiscal year 1985 budget for the purpose of completing major rehabilitation work on the embankment and spillway. The department supports the President's recommendation for funding in fiscal year 1985.

JOHNSON CREEK—GRAND PRAIRIE

A total of $175,000 is included in the President's fiscal year 1985 budget for the purpose of continuing a feasibility study of ways to protect this flood-prone area from flooding. The area is located between the urban complexes of Dallas and Fort Worth. The department supports the President's recommended $175,000 in fiscal year 1985 for studies to determine if structural relief from local flooding is a viable option.

RAY ROBERTS AND JOE POOL LAKES

Lake Ray Roberts (formerly Aubrey Lake), jointly sponsored by the cities of Dallas and Denton, and Lake Joe Pool (formerly Lakeview Lake), sponsored by the Trinity River Authority of Texas, are included in the President's budget for 1985 in the amounts of $58 million and $18.1 million, respectively. Both reservoirs are high-priority projects because of rapid regional growth which is resulting in a need for additional water supply, flood control, and recreation facilities which the lakes will provide. The department requests the committee's support for the budgeted amounts recommended by the President during fiscal year 1985 in order to continue scheduled construction of these projects.

OPERATION AND MAINTENANCE

The department supports funding to the Corps of Engineers for operation and maintenance during fiscal year 1985 for the following projects located in the Trinity River basin: Bardwell Lake, $923,000; Benbrook Lake, $1,046,000; Grapevine Lake, $1,470,000; Lavon Lake, $1,654,000; Lewisville Dam, $2,175,000; Navarro Mills Lake, $710,000; and Wallisville Reservoir and saltwater barrier, $150,000. These amounts are included in the President's budget for fiscal year 1985.

The Texas Department of Water Resources requests committee support of these regional water resource development needs. The department most respectfully urges funds as requested in order to accomplish the coordinated, orderly development of urgently needed water resources projects in the Trinity River basin in the State of Texas.

BEDIAS RESERVOIR FEASIBILITY STUDY

Mr. GILLEN. In the essence of time I will summarize my statement. My complete comments have already been submitted for the record.

The amount of $275,000 has been proposed for inclusion in the U.S. Department of the Interior Bureau of Reclamation's budget request for a general investigation on the feasibility of a Bedias Reservoir. To indicate TRA's support for this project, the authority has already participated in some up-front support in the feasibility studies by contributing some in-kind services. As these feasibility studies move forward, TRA will be providing up-front, in-kind services primarily in the public department in—areas. For the first time in over 20 years, funding for the Trinity River project studies has not been included in the budget proposal. We support reinstatement of study funding to the degree of capability expressed by the Fort Worth District of the Corps of Engineers.

WALLISVILLE LAKE, TEX.

For the first time since the Wallisville project was enjoined in 1973 by what proved to be a very sticky environmental lawsuit, the authority can cautiously report limited progress in achieving a resumption of construction thanks to the actions of this committee last year. Since your actions were signed into law, the Corps of Engineers has executed a record of decision and transmitted all reports to the U.S. Attorney's Office to prepare for a request to lift the injunction. There is little to ask of this committee at the present time with the exception that should the environmental injunction be lifted and the Corps of Engineers express a construction capability, we ask that these be funded.

This is my first opportunity to testify before this committee and I would be remiss if I did not conclude my remarks by expressing my appreciation for your visionary contributions to the well being of people in the Trinity River basin.

Thank you.

Senator ABDNOR. Thank you, Mr. Gillen. You say this is the first time you testified but you do it like a veteran.

[The statement follows:]

Statement of Blake Gillen, President, Trinity River Authority of Texas

I am Blake Gillen of Corsicana, Texas. I am a member of the Board of Directors of the Trinity River Authority of Texas (TRA) representing Navarro County and currently serve as the Authority's President.

TRA strongly endorses and requests your support for the funding recommended in the Administration's FY 1985 Budget for those projects for which we are the local sponsor. Within our political subdivision, the federal investment in water resource development helped set the stage for unparalleled economic development and population growth. Additional federal water resource development assistance, in the form of our funding requests that follow, will be necessary if we are to even begin to meet the tremendous future water needs of people dependent on the resources of the Trinity River. We earnestly solicit your attention and support.

Funding Requests:

A. Continuing Congressional support for construction funding for Lake Joe Pool and Lake Ray Roberts in the Upper Trinity Basin will remain of crucial importance during FY 1985. The Fort Worth District of the Corps advises that $18,100,000 will be adequate for the Joe Pool project, which TRA sponsors. The Ray Roberts projects, which is sponsored by the Cities of Dallas and Denton, will require $58,000,000 for the 1985 fiscal year.

B. The amount of $275,000 has been proposed for inclusion in the U. S. Department of Interior Bureau of Reclamation's Budget Request for a General Investigation on the feasibility of a Bedias Reservoir in

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For the first time since the Wallisville Project was enjoined in 1973 by what proved to be a very sticky environmental lawsuit, the Authority can cautiously report limited progress in achieving a resumption of construction thanks to the actions of this Committee last year. Since your actions were signed into law, the Project's revised Environmental Impact Statement and Post Authorization Change Report has been released for public comment, the Corps has responded to all comments and executed a Record of Decision.

Basically, this takes the project out of the Corps' hands and places it in the domain of the U. S. Attorney's Office for the Southern District of Texas. As legal representative for the Corps, the U. S. Attorney will be responsible for submitting the project documents to the Federal District Court so the injunction can be lifted. It is conceivable that this could occur very rapidly.

Realistically, there is little to ask of this Committee at the present time with the exception that, should the environmental

INJUNCTION BE LIFTED AND THE C/E EXPRESS A CONSTRUCTION CAPABILITY, WE ASK THAT THESE BE FUNDED. TRA IS FINISHED WITH THE TASK OF PRESERVING THE PROJECT'S LIFE AND HAS EMBARKED ON THE TASK OF BRINGING ABOUT ITS RESURRECTION. IN FUTURE YEARS, CONCEIVABLY IN OUR NEXT STATEMENT TO THIS BODY, WE WILL BE REQUESTING YOUR SUPPORT FOR A RESUMPTION OF CONSTRUCTION AND CONSTRUCTION FUNDING.

CONCLUSION

THIS IS MY FIRST OPPORTUNITY TO TESTIFY BEFORE THIS COMMITTEE AND I WOULD BE REMISS IF I DID NOT CONCLUDE MY REMARKS BY EXPRESSING MY APPRECIATION FOR YOUR VISIONARY CONTRIBUTIONS TO THE WELL BEING OF PEOPLE IN THE TRINITY RIVER BASIN.

WATER BECOMES MORE IMPORTANT IN TEXAS BY THE DAY AND WE SINCERELY APPRECIATE THE ROLE CONGRESS HAS PLAYED IN PREPARING US FOR THE ECONOMIC GROWTH AND DEVELOPMENT WE ARE CURRENTLY EXPERIENCING. WITH GROWTH PROJECTED TO CONTINUE IN THE YEARS TO COME, WE WILL CONTINUE TO REQUIRE YOUR ASSISTANCE. THANK YOU FOR YOUR ATTENTION AND WE SOLICIT YOUR SUPPORT.

LOWER TRINITY RIVER NAVIGATION PROJECT

STATEMENT OF ERNIE ZIESCHANGE, COMMISSIONER, PORT OF LIBERTY, TEX.

Mr. GODFREY. Mr. Chairman, I have next the pleasure of presenting Mr. Zieschange, commissioner of the Port of Liberty.

Senator ABDNOR. Mr. Zieschange, we welcome you to the committee. Texas is well represented today.

Mr. ZIESCHANGE. Thank you.

Mr. Chairman and members of the committee, my name is Ernie Zieschange. I am vice president of the Liberty-Dayton Area Chamber of Commerce and also serve as secretary to the Port of Liberty Commission. I am testifying today as spokesman for the Port of Liberty and lower Trinity River in general. We need your support for solutions to the problems we face along the lower reaches of the Trinity River.

Mr. Chairman, my statement will be summarized, it has already been submitted for the record.

Our port is located at river mile 45 and is only usable during periods of extremely high river rises. On March 19 of this year, Mississippi Chemical was able to receive a barge load of liquid fertilizer from Yazoo City, Miss. This is the first barge traffic to the Port of Liberty that we have been able to achieve since last fall. Mississippi Chemical will barge traffic to the Port of Liberty on a regular basis a conservatively estimated 80,000 to 100,000 tons per year. We also have a number of companies who want to barge building materials in and out of the Port of Liberty on a regular basis.

Our biggest current problem is that no appropriations have been included in the fiscal year 1985 budget for dredging the lower Trinity because of past eastment problems. At the same time, we have been advised that the Galveston district of the Corps of Engineers has a $1 million capability to perform this most needed work.

Being unable to successfully navigate the lower Trinity has contributed to the closure of several Port of Liberty industries, one of which employed 800 persons. This has also contributed to several negative economic factors in our area such as a 20-percent decline in Liberty's population, the extremely high unemployment rate, and a heavy tax loss of revenue in excess of $1 million.

Mr. Chairman, we respectfully request that you reinstate the funding into the budget for maintenance dredging of the lower Trinity River and its tributaries. While maintenance dredging of the lower Trinity will have a positive effect on the economy of our area, the total and permanent solution to this problem is the development of the lower Trinity multipurpose channel component of the Corps' Trinity River project.

For the first time in over 20 years Trinity project study funds have not been included in the fiscal year 1985. Because of the tremendous long-term significance of the lower Trinity multipurpose channel to the citizens of our area, we request you restore this funding in the full amount of the Corps' capability. Thank you for your attention.

Senator ABDNOR. Well, thank you, Mr. Zieschange.

Let me ask you, the $350,000 for the lower Trinity channel dredging study, that is the thing you are after, right?

Mr. ZIESCHANGE. I am also asking to reinstate funding for maintenance dredging of the lower Trinity River.

Senator ABDNOR. How much is that?

Mr. ZIESCHANGE. The Corps has a capability of $1 million.

Senator ABDNOR. Is that going to do the dredging?

Mr. ZIESCHANGE. That would go a long way, sir. Yes, sir.

Senator ABDNOR. Whether it will do the whole thing, you are not sure?

Mr. ZIESCHANGE. From the Port of Liberty to Anahuac.

Senator ABDNOR. You said you had an easement problem?

Mr. ZIESCHANGE. We have had an easement problem due to lost membership perhaps. We have had new members of our navigation board elected for Liberty and Chambers County. We have been working very well with them and we visited with the Corps of Engineers about 2 weeks ago and went over the project with them again and worked out some of the differences, I think, that we have had in the easements and we have hired an engineer to work with us, a former Governor of Texas, Price Daniel. A U.S. Senator is working with us on this project; he is a landowner in that area. We desperately need money.

Senator ABDNOR. The situation is pretty well working itself out on the easements?

Mr. ZIESCHANGE. Yes, sir. We have them well underway.

Senator ABDNOR. Thank you very much.

[The statement follows:]

Statement of Ernie Zieschange, Secretary, Port of Liberty Commission, Texas

My name is Ernie Zieschange. I am a newspaper publisher, Vice President of the Liberty-Dayton Area Chamber of Commerce and also serve as Secretary to the Port of Liberty Commission. I am testifying today as spokesman for the Port of Liberty and lower Trinity River in general. We need your support for solutions to the problems we face along the lower reaches of the Trinity River.

Our Port of Liberty is located at river mile 45 and is only usable during periods of extremely high river rises. On March 19, Mississippi Chemical was able to receive a barge load of liquid fertilizer from Yazoo City, Mississippi. This is the first barge traffic to the Port of Liberty since last year. Mississippi Chemical will barge to the Port of Liberty on a regular basis a conservatively estimated 80,000 to 10,000 tons per year. We also have a number of companies who want to barge building materials in and out of the Port of Liberty on a regular basis.

Maintenance dredging of the existing authorized six foot run-of-the river channel has been complicated in recent years by the lack of dredge spoil easements. The local sponsor for this maintenance dredging, the Chambers-Liberty Counties Navigation District, is currently making an unprecedented effort, including the hiring of an outside consultant firm, to obtain these easements. In addition to this firm, Trinty River landowner, former Governor of Texas and U. S. Senator Price Daniel, is an active supporter of this project and is assisting us in securing these easements. We will have completed easement acquisition well in advance of the October 1 start of the federal fiscal year.

Our biggest current problem is that no appropriations have been included in FY 1985 Budget for dredging the lower Trinity because of past easement problems. At the same time, we have been advised that the Galveston District of the Corps of Engineers has a $1 million capability to perform this most needed work.

Being unable to successfully navigate the lower Trintiy has contributed to the closure of several Port of Liberty industries, one of which employed 800 persons. We have been unsuccessful in attracting new industries that have made serious inquiries about locating in the Port area due to the lack of dependable navigation. This has also contributed to several negative economic factors:

- A 20% decline in Liberty's population.
- An extremely high unemployment rate, and
- Heavy loss of tax revenue in excess of $1 million.

We strongly request that you direct the Corps to reroute money in house for maintenance dredging, if it is available. If it is not, we request a straight line item appropriation to the maximum extent of the Corps' capability.

WHILE MAINTENANCE DREDGING OF THE LOWER TRINITY WILL HAVE A VERY POSITIVE EFFECT ON THE ECONOMY OF THE LIBERTY AREA, THE TOTAL AND PERMANENT SOLUTION TO THIS PROBLEM IS DEVELOPMENT OF THE LOWER TRINITY MULTIPLE-PURPOSE CHANNEL COMPONENT OF THE CORPS' TRINITY RIVER PROJECT.

FOR THE FIRST TIME IN OVER TWENTY YEARS, TRINITY PROJECT STUDY FUNDS HAVE NOT BEEN INCLUDED FOR FY 1985. WE HAVE BEEN ADVISED THAT THE FORT WORTH DISTRICT OF THE CORPS HAS THE CAPABILITY TO BENEFICIALLY EXPEND AS MUCH AS $350,000 FOR THIS PURPOSE. BECAUSE OF THE TREMENDOUS LONG-TERM SIGNIFICANCE OF A LOWER TRINITY MULTIPLE-PURPOSE CHANNEL TO THE CITIZENS OF OUR AREA, WE RESPECTFULLY REQUEST YOU RESTORE FUNDING IN THE FULL AMOUNT OF THE CORPS' CAPABILITY.

AS ONE OF THREE LOCAL SPONSORS, WE CONTINUE TO SUPPORT THE WALLISVILLE PROJECT AND HOPE TO SEE IT UNDER CONSTRUCTION AT THE EARLIEST POSSIBLE DATE. THANKS TO THE EFFORTS OF THIS COMMITTEE, PROGRESS HAS BEEN MADE AND A SOLUTION IS NEAR.

THANK YOU FOR YOUR ATTENTION.

WALLISVILLE LAKE, TEX.

STATEMENT OF CAROL DINKINS, HOUSTON CHAMBER OF COMMERCE

Mr. GODFREY. Mr. Chairman, a rose and a person responding to the name of Mrs. Carol Dinkins has slipped into our midst. She represents the Houston Chamber of Commerce and I should like to present her now.

Senator ABDNOR. Mrs. Dinkins, we are happy to have you with us.

Mrs. DINKINS. Thank you. I appreciate the opportunity to testify, Mr. Chairman.

My name is Carol Dinkins. I represent the Houston Chamber of Commerce and speak in behalf of the city of Houston and its metropolitan area, the fifth largest city in the United States. We face a water supply problem of serious proportions and timely action is needed to effect a solution.

If I might digress, Mr. Chairman, the Houston chamber has recently completed a year and a half long study which indicates that through the year 2020 our cost for water supply alone may reach as much as $3.3 billion. The Wallisville Reservoir and saltwater barrier project has been in integral part of that study.

As a direct result of actions by your committee last year, the Wallisville Reservoir and saltwater barrier project has been set in motion. The project's local sponsors are making a major effort to sustain this motion aimed toward the earliest possible resumption and completion of construction.

The city of Houston has a compelling need for additional sources of surface water. Over $160 million has already been invested in conveyance systems to bring Trinity River and Wallisville Reservoir water to the city of Houston which has severe subsidence problems and we must get off-the-ground water as soon as possible. A completed Wallisville will allow the city to better utilize and conserve the water resources it has in the Trinity River basin.

We will need more assistance from your committee before our work is complete. Additional funds are requested to complete final designs and specifications and to resume construction when the environmental injunction is lifted later this year. The local sponsors working with the Corps and the Justice Department hope to have this project back under construction before next spring.

Thank you for your continued support of the project.

I would like to enter into the record a statement signed by Jon Vanden Bosch, director of public works for the city of Houston.

Senator ABDNOR. We will be happy to make it a part of the record.

[The statement follows:]

STATEMENT OF JON C. VANDEN BOSCH, P.E., DIRECTOR, PUBLIC WORKS DEPARTMENT, HOUSTON, TEX.

Dear Mr. Chairman, as a direct result of actions by your committee last year, the Wallisville Reservoir and saltwater barrier project has been set in motion. The project's local sponsors are making a major effort to sustain this motion aimed toward the earliest possible resumption and completion of construction.

The city of Houston has a compelling need for additional sources of surface water. Over $160 million has already been invested in conveyance systems to bring Trinity River/Wallisville water to the city where it is vitally needed. As you have probably heard, the metropolitan Houston area has severe subsidence problems and we must decrease our dependence on ground water as soon as possible. A completed Wallisville will allow the city to better utilize and conserve the water resources it has in the Trinity River basin.

We will need more assistance from the committee before our work is complete. Additional funds are requested to complete final designs and specifications and to resume construction when the environmental injunction is lifted later this year. The local sponsors working with the Corps and the Justice Department hope to have this project back under construction before next spring.

Again, thank you for your continued support of the Wallisville project.

Mr. GODFREY. Mr. Chairman, we have one more speaker with your permission.

Senator ABDNOR. All right.

Mr. GODFREY. Mr. Carl Riehn, executive director, North Texas Municipal Water District.

COOPER LAKE AND CHANNEL, TEXAS

STATEMENT OF CARL RIEHN, EXECUTIVE DIRECTOR, NORTH TEXAS MUNICIPAL WATER DISTRICT

Mr. RIEHN. Thank you, Mr. Chairman.

My name is Carl W. Riehn. I am the executive director of the North Texas Municipal Water District and today I also represent the Sulphur River Municipal Water District and the city of Irving in their interest as local participants that will replay 100 percent of the cost for water supply in the construction of the Cooper Lake.

The project has been delayed for the past 13 years by Federal District Judge William Wayne Justice on the basis that an adequate environmental impact statement has not been submitted. The Federal

Fifth Circuit Court of Appeals heard oral arguments on the case March 13, 1984, and the project should be released for construction in the next 6 months. Millions of dollars have been spent refuting false information on damage to the environment. All of the studies have proven that the project will not in any way harm the environment but will enhance the use of the land by humans for recreation and vitally needed water supply. However, the latest arguments against the project are no longer connected with the environment but profess that the project is not needed for water supply, which is completely ridiculous when you review the reports of the State of Texas and the local participant's schedule of needs. Remember, the local participants have signed agreements requiring 100-percent repayment for water supply cost.

But the worse crime to the people is the increased cost of the total project from $28 million in 1968 to a current estimated $160 million. The true waste of the citizens' money is not on the water projects or the Corps of Engineers but on the environmentalists whose concern was to stop development and reduce growth so that a few could enjoy the benefits of increased prestige in an alleged program of protecting the environment.

We are aware that no funds are currently in the budget for the Cooper project. However, we urge this committee to remember that, if the project is released this year by the courts, the Corps of Engineers needs to be able to move forward with the construction as rapidly as possible. It is currently estimated to take a minimum of 7 years to complete the engineering and construct the project; therefore, any additional delays due to lack of funds would add to a continued burden on the citizens of this area of the State of Texas. Any consideration or any assistance you could give us will be greatly appreciated.

I sincerely appreciate the opportunity to be here before you today.

Senator ABDNOR. Thank you, Mr. Riehn. You have a law suit, I understand.

Mr. RIEHN. It has been 13 years since the lawsuit was filed.

Senator ABDNOR. Six months to do the job.

Mr. RIEHN. Yes, sir.

Senator ABDNOR. I hope you're right.

Well, gentlemen, does that conclude the panel?

CONCLUDING REMARKS

Mr. GODFREY. That concludes the panel, Mr. Chairman.

On behalf of the 61 persons here, may I express our appreciation to the committee. We know the pressures upon your time. We also are conscious of the deficiency and its effect upon the appropriations. I am authorized on behalf of the 61 persons representing the various areas here to say that we are willing to bear our portion of the burden of the economic cost of those things that we request.

ADDITIONAL PREPARED STATEMENTS

Senator ABDNOR. Thank you, gentlemen and lady, for your testimony and the very fine job you have done today. We appreciate your being here, especially 61 strong. The airline business is booming and it certainly shows your great interest. Thank you very, very much.

And as I said earlier, the additional statements and material you have submitted to be made part of the record.

[The information follows:]

STATEMENT OF THE TRINITY IMPROVEMENT ASSOCIATION, TEXAS

The Trinity Improvement Association on behalf of the Trinity basin delegation requests the support of the Congress with regard to the Energy and Water Development Appropriations Bill for fiscal year 1985 for projects of the Corps of Engineers and Bureau of Reclamation as follows:

FUNDING REQUESTS:

PROJECT		BUDGET REQUEST
USBR - GENERAL INVESTIGATIONS		
BEDIAS PROJECT	$	275,000
CORPS OF ENGINEERS - SURVEYS		
JOHNSON CREEK	$	175,000
TRINITY RIVER PROJECT	Corps Capability	
CORPS OF ENGINEERS - CONSTRUCTION		
COOPER LAKE & CHANNELS	Corps Capability	
WALLISVILLE LAKE	Corps Capability	
GRAPEVINE LAKE	$	4,200,000
JOE POOL LAKE	$	18,100,000
RAY ROBERTS LAKE	$	58,000,000
CORPS OF ENGINEERS - OPERATIONS AND MAINTENANCE		
BARDWELL LAKE	$	423,000
BENBROOK LAKE	$	1,046,000
GRAPEVINE LAKE	$	1,470,000
LAVON LAKE	$	1,654,000
LEWISVILLE LAKE	$	2,175,000
NAVARRO MILLS LAKE	$	710,000
WALLISVILLE LAKE & SALT WATER BARRIER	$	150,000

ADMINISTRATIVE REQUESTS:

For the first time in over twenty years, funding for the Trinity River Project has not been included in the budget request. It is urged that the Committee support reinstatement of study funding to the degree of the Corps of Engineers Capability.

Progress on both Cooper and Wallisville reservoir projects has been enjoined by the courts. The support of this Committee for both projects in the FY 1984 budget has encouraged a favorable outlook on lifting the injunctions. It is hoped this will occur during the current year. Should either or both injunctions be lifted and the Corps of Engineers express a construction capability, we ask that these projects be funded.

TRINITY IMPROVEMENT ASSOCIATION

1984 Congressional Hearings

Delegate Names and Addresses

UPPER TRINITY:

Joe Pool Lake Planning Council:

Mr. Greg Patton
President
Joe Pool Lake Planning Council
P. O. Box 400
Cedar Hill, TX 75104

Mr. Jerry L. Watts
Secretary Treasurer
Lakeview Lake Planning Council
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Duncanville, TX 75116

City of Cedar Hill:

Honorable Archie Hall
Mayor
City of Cedar Hill
P. O. Box 96
Cedar Hill, TX 75104

Honorable T. W. Cannady
Mayor Pro Tem
City of Cedar Hill
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Cedar Hill Chamber of Commerce:

Mr. John Massie
President
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City of Duncanville:

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Honorable & Mrs. Jeff Moore
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Mansfield Chamber of Commerce

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Irving Chamber of Commerce:

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Ms. Amy Douglas
c/o Mr. Rick Douglas
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North Texas Municipal Water District:

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Mr. John Gay
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Greater Dallas Planning Council:

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North Texas Commission:

Mr. Worth Blake
President
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Tarrant County WCID:

Mr. Bill Hilliard
Tarrant County Water Control and
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Trinity Improvement Association:

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Mr. Sam Scott
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Mr. Dennis Baker
Southern Region Manager
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Mr. Blake Gillen
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County Judge, Polk County
Polk County Court House
Livingston, TX 77351

Honorable R. D. Cunningham
Polk County Commissioner
Polk County Court House
Livingston, TX 77351

Honorable James L. Purvis
Polk County Commissioner
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Honorable Paul Harrell
Polk County Commissioner
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Honorable C. Scott Parker
Mayor
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Port of Liberty:

Mr. John Hebert
Commissioner, Port Commission
Port of Liberty
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Mr. Art Barkis
Commissioner, Port Commission
Port of Liberty
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Mr. Ernie Zieschange
Commissioner, Port Commission
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Mr. Homer Smith
Acting Port Director
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Chambers/Liberty Counties Navigation District:

Mr. Maurice Locke
Commissioner
Chambers/Liberty Counties
Navigation District
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Liberty, TX 77575

Houston Chamber of Commerce

Mrs. Carol Dinkins
Vinson & Elkins
First City Tower
Houston, TX 77002

RESOLUTION OF THE CITY OF MIDLOTHIAN, TEX.

WHEREAS, the Midlothian Water District has contracted 39% of the water supply from Joe Pool Lake (Lakeview Reservoir). The Midlothian Water District has just passed a Bond Issue for the construction of an intake structure and water treatment facility to serve our community and our region. Our primary function is to supply the water needs in the Midlothian Water District; and

WHEREAS, we urgently need a surface supply of water, rather than depend on our present supply from wells as the water table in our area is diminishing at an alarming rate of 30 to 40 feet per year; and

WHEREAS, the lake will afford recreation facilities to the Dallas - Fort Worth Metroplex area and throughout the state, resulting in a savings of fuel and energy due to the close proximity of the densely populated area; and

WHEREAS, the flood control Joe Pool will afford in our area is immeasurable in human life and property damage.

BE IT RESOLVED, that the Congress of the United States is urged to appropriate $18,100,000 which represents the Corps of Engineers Fiscal Year 1985, for construction of Joe Pool Lake and assure the earliest completion date.

RESOLUTION OF THE MIDLOTHIAN WATER DISTRICT, TEXAS

WHEREAS, the Midlothian Water District has contracted 39% of the water supply from Joe Pool Lake (Lakeview Reservoir). The Midlothian Water District has just passed a Bond Issue for the construction of an intake Structure and water treatment facility to serve our community and our region. Our primary function is to supply the water needs in the Midlothian Water District; and

WHEREAS, we urgently need a surface supply of water, rather than depend on our present supply from wells as the water table in our area is diminishing at an alarming rate of 30 to 40 feet per year; and

WHEREAS, the lake will afford recreation facilities to the Dallas - Fort Worth Metroplex area and throughout the state, resulting in a savings of fuel and energy due to the close proximity of the densely populated area; and

WHEREAS, the flood control Joe Pool will afford in our area is immeasurable in human life and property damage.

BE IT RESOLVED, that the Congress of the United States is urged to appropriate $18,100,000 which represents the Corps of Engineers Fiscal Year 1985, for construction of Joe Pool Lake and assure the earliest completion date.

THE MIDLOTHIAN WATER DISTRICT

V. H. Easterwood Jr.
V. H. Easterwood, Jr.
President

ATTEST:

June Smith
June Smith

RESOLUTION OF THE MIDLOTHIAN (TEX.) CHAMBER OF COMMERCE

WHEREAS, the Midlothian Water District has contracted 39% of the water supply from Joe Pool Lake (Lakeview Reservoir). The Midlothian Water District has just passed a Bond Issue for the construction of an intake structure and water treatment facility to serve our community and our region. Our primary function is to supply the water needs in the Midlothian Water District; and

WHEREAS, we urgently need a surface supply of water, rather than depend on our present supply from wells as the water table in our area is diminishing at an alarming rate of 30 to 40 feet per year; and

WHEREAS, the lake will afford recreation facilities to the Dallas - Fort Worth Metroplex area and throughout the state, resulting in a savings of fuel and energy due to the close proximity of the densely populated area; and

WHEREAS, the flood control Joe Pool will afford in our area is immeasurable in human life and property damage.

BE IT RESOLVED, that the Congress of the United States is urged to appropriate $18,100,000 which represents the Corps of Engineers Fiscal Year 1985, for construction of Joe Pool Lake and assure the earliest completion date.

THE MIDLOTHIAN CHAMBER OF COMMERCE

Thomas D. Lundberg

Thomas D. Lundberg
President

Resolution of the Grand Prairie (Tex.) Chamber of Commerce

A RESOLUTION CONCERNING THE CONSTRUCTION OF JOE POOL RESERVOIR, THE FUNDING AND WORK PROGRAM, AND REQUESTING CONTINUED FUNDING: TO BECOME EFFECTIVE UPON ITS PASSAGE AND APPROVAL.

WHEREAS, the Federal Government has determined that the Joe Pool Reservoir, located predominantly in Southwest Dallas County, has a cost benefit ratio which justifies the construction of said reservoir; and

WHEREAS, the construction of Joe Pool Project was approved by Congress in 1965; and

WHEREAS, appropriations have consistently and continuously been made by the United States Congress for the construction of said lake; and

WHEREAS, most plans and specifications have been completed for the construction of said lake; and

WHEREAS, land acquisition has begun; and

WHEREAS, the Trinity River Authority is the local sponsor for implementation of municipal water supply; and

WHEREAS, the Trinity River Authority and the State of Texas and certain municipalities will construct, operate, and maintain various park facilities on and around the lake; and

WHEREAS, additional appropriations will be needed for the expeditious completion of the project;

NOW, THEREFORE, BE IT RESOLVED BY THE GRAND PRAIRIE CHAMBER OF COMMERCE

SECTION I: THAT the Congress of the United States is hereby specifically requested to approve the President's Budget which allocates $18.1 million for funding of Joe Pool Reservoir in 1984/85.

SECTION II: THAT the Congress of the United States continue approval of funding for this project in the future.

SECTION III: THAT the Grand Prairie Chamber of Commerce expresses the appreciation and gratitude for the foresight of the House & Senate Subcommittees of appropriations for this vital project.

SECTION IV: THAT this Resolution be in full force and effect from and after its passage and approval.

PASSED AND APPROVED in the regular meeting by the Board of Directors of the Grand Prairie Chamber of Commerce this the 20th day of March, 1984.

PRESIDENT

ATTEST:

Executive Director

LETTER FROM THE TRINITY RIVER AUTHORITY, TEXAS

March 19, 1984

The Honorable John G. Tower, U.S.S.
179 Russell Senate Office Building
Washington, D. C. 20510

Re: Fiscal Year 1985 Appropriations for Water Resources Projects in the Trinity Basin

Dear Senator Tower:

On April 4, 1984, the Authority is scheduled to appear before the Appropriations Subcommittee on Energy and Water Development. Listed below are the points we will be covering in our statement and ask that you also support them.

1. BEDIAS RESERVOIR PROJECT: The Bedias Reservoir is a Bureau of Reclamation project for water supply located in Madison and Walker Counties.

   Support the $275,000 in the President's Budget to continue General Investigations for the feasibility of this water supply project for the Lower Trinity Basin and Houston Metropolitan area.

2. JOE POOL LAKE (Lakeview): Joe Pool Lake is a Corps of Engineers' flood control, water supply and recreation project located in southeast Tarrant and southwest Dallas counties.

   The President's Budget contains $18.1 Million for construction. The Fort Worth District of the Corps of Engineers had indicated to us that it has a capability of spending $18.1 Million during Fiscal Year 1985 for land acquisition, road relocation, and embankment construction.

3. TRINITY RIVER, TEXAS: This Corps of Engineers' Project consists of two (2) elements. They are the Dallas Floodway Extension, which would extend the present Dallas levees through south Dallas; and the Multiple-Purpose Channel for flood control, recreation and navigation from Trinity Bay to Liberty.

   For the first time in twenty years no funds are included in the 1985 Budget. The Fort Worth District has a capability of $350,000 to complete the Phase II studies. Support the inclusion of funds to complete the study.

4. WALLISVILLE LAKE: Wallisville Lake is a saltwater barrier, recreation and water supply project located at the mouth of the Trinity River in Chambers and Liberty Counties.

   No funds are included in the President's Budget, and none are needed until the environmental injunction is lifted.

   Thanks to the actions of the Energy and Water Development Subcommittee last year, the Corps has signed a Record of Decision which now allows the environmental lawsuit to be reviewed in Federal Court and perhaps the injunction lifted.

5. RAY ROBERTS LAKE: Ray Roberts Lake is a Corps of Engineers' flood control and recreation project located in Cook and Denton Counties. The Cities of Dallas and Denton serve as the project's local sponsor.

   The President's Budget contains $58 Million for land acquisition and construction.

If we can provide you with more information, please do not hesitate to call.

Yours very truly,

DANNY F. VANCE
General Manager

GULF INTRACOASTAL WATERWAY

STATEMENT OF DALE MILLER, PRESIDENT, GULF INTRACOASTAL CANAL ASSOCIATION

Senator ABDNOR. We have two other witnesses we will call together, Mr. Dale Miller, president of the Gulf Intracoastal Canal Association, and Mr. Harry Plomarity, executive director of the Port of Corpus Christi Authority. I hope you don't mind being called together.

Mr. MILLER. Appreciate it, Mr. Chairman.

Senator ABDNOR. Whoever cares to go first, you may proceed.

Mr. MILLER. My name is Dale Miller, Mr. Chairman. I am president of the Gulf Intracoastal Canal Association with principal offices in Friendswood, Tex. There has been created over a long period of years a remarkable transportation facility extending from the Mexican border to the west coast of Florida to the five coastal States and it is a complex system consisting of a main channel with many tributaries to all ports. A number of witnesses have appeared before you during the course of the hearing on these ports so I will not encumber the record further. So I will have a brief statement here and will simply submit the statement to the record, Mr. Chairman.

Senator ABDNOR. I assure you it will be made a part of the record.

Mr. MILLER. That will conclude my statement except to say I want to associate myself with the remarks of Mr. Harry Plomarity who is here to follow me at this time.

Senator ABDNOR. Thank you.

[The statement follows:]

STATEMENT OF DALE MILLER, PRESIDENT, GULF INTRACOASTAL CANAL ASSOCIATION

My name is Dale Miller, and I am President of the Gulf Intracoastal Canal Association, with principal offices in Friendswood, Texas. It is my privilege to appear before you today, as I have each year for a considerable period of time, to recommend the appropriation of adequate funds to continue the improvement and efficient operation of the Gulf Intracoastal Waterway system, and its related shallow-draft and deep-draft projects along the Gulf Coast and into the hinterlands. A number of these projects are being represented by well-informed witnesses during the course of your hearings, and I shall not encumber the record with repetitious testimony. It will be my function to depict briefly a broader picture of this impressive navigation development along the Gulf Coast.

Our Gulf Intracoastal Canal Association was organized in 1905, nearly 79 years ago, and through the years it has cooperated actively with Congress and Government agencies in the creation of the Gulf Intracoastal Waterway system, a complex of navigation facilities which has come to be regarded as the most remarkable artery of transportation in America. It has achieved by far the highest ratio of benefits to costs of any waterway in the nation -- or of any other form of transportation. Its annual commerce of approximately 90,000,000 tons exceeds by eighteen times the figure of 5,000,000 tons which was originally predicted for it when it was authorized. It is a noteworthy fact that this Canal returns each year $26 in savings in transportation costs for every dollar expended by the Federal Government in its construction, maintenance, and operation.

I am aware that these facts are known to many members of this Subcommittee, who have been close to this project for years, but I review them briefly here to place in proper perspective my appearance before you in behalf of adequate appropriations to perpetuate the worthwhile service being performed by the Intracoastal Canal and related navigation projects. I have no hesitancy in asserting that their record of service in the past fully justifies your favorable consideration of their needs today.

In submitting for your consideration these meritorious projects along the Gulf Coast, we conform our recommendations to criteria which we think are sound, these criteria having been established by findings of responsible officers of the Corps of Engineers as to the amount of funds which can be economically expended during the year. While recommendations of the Office of Management and Budget reflect such criteria in some instances, they fail to do so in many cases, and we respectfully suggest that the more reliable guide to a realistic civil works program is provided by the ability of the Corps to prosecute its work on a sound basis.

With respect to the Gulf Intracoastal Waterway itself, our most important objective in the future will be the deepening and widening of the main channel to accommodate its rapidly growing commerce. Congress has already authorized new dimensions for the busy central segment between New Orleans and Houston, with increases from 12 to 16 feet in depth and from 125 to 150 and 200 feet in width. We are confident that the Subcommittee shares our awareness of the importance of this authorized project, but we do not request funds to initiate construction at the present time, since local problems have not yet been resolved. Inasmuch as the project spans a distance of 350 miles, problems of rights-of-way and pipeline relocations are of course formidable, but we intend to have them resolved, and our request just now is only that the Subcommittee keep in mind the importance of this undertaking until such time that we seek funds to get construction underway.

Meanwhile, however, it is a notable fact that during the period since those new dimensions were authorized in 1966 the commerce moving over the Waterway has more than doubled. In other words, if Congress found it necessary to authorize a considerable deepening and widening when the traffic was less than half of what it is today, what might be said of its actual requirements now? For this reason, we secured authority from Congress to empower the Corps of Engineers to up-date those studies which led to that authorization -- to determine if present conditions do not in fact require still greater dimensions. We recommend that the Subcommittee provide whatever funds may be required by the Corps of Engineers to bring this important investigation to an expeditious conclusion.

Virtually all navigation projects on the Gulf Coast -- both deep-draft and shallow-draft channels -- either coincide with, or are tributary to, the Gulf Intracoastal Waterway, and for this reason our Association has a vital interest in their development and improvement. Accordingly, we earnestly request the Subcommittee to give favorable consideration to the needs of all such projects.

One of the most important objectives of the Gulf Intracoastal Canal Association is the extension of navigation into the hinterlands through the development of principal tributaries. Of major importance in the eastern Gulf is the Tennessee-Tombigbee, the construction of which should be expedited. Of comparable importance in the western Gulf is the Trinity River in Texas. Despite a number of problems that have been encountered in some areas of the watershed, we believe the project remains viable for navigation to a considerable distance inland.

As important as tributary streams into the hinterlands, however, are access channels outward to the Gulf, especially in view of the increasing activity in offshore petroleum development. Improvement of existing facilities, and construction of new channels as required, will be essential to this development -- as will be increased dimensions for progressive Gulf Coast ports. The Gulf Intracoastal Waterway will be a vital part of all this activity, and our Association urges the Appropriations Subcommittee to be promptly responsive to such needs.

Of significance to our long-range program are two projects in Florida. One is the Cross-Florida Barge Canal, a project designed to connect the Gulf and Atlantic inland waterways into a continuous navigation facility extending from the Mexican border to the northeastern area of the United States. We deplore the arbitrary action of the Administration in 1971 in halting construction of this project -- on which more than fifty million dollars had been expended to bring it to one-third completion -- but it remains our conviction that it is needed, and we are hopeful of its eventual re-consideration. The other project is the extension of the Gulf Intracoastal Waterway from St. Marks to Tampa Bay -- the missing link in a protected inland navigation channel which otherwise extends along the entire Gulf. This key project should be constructed in order to complete the system.

Funds for general investigations, and advance engineering and design, are as important as funds for construction, for without adequate appropriations in those categories a realistic and beneficial public works program cannot be perpetuated. Sufficient funds for rehabilitation work should likewise be supplied when required, in order that the system may operate at its maximum efficiency. We were heartened by the initiation of construction in fall of 1981 of the new Leland Bowman Lock in Louisiana, as a replacement for the obsolescent Vermilion Lock, and completion of this much-needed facility should be expedited.

Although requests for construction funds are customarily accorded the greatest emphasis in these hearings, I would like to stress also the over-riding importance of appropriations for maintenance. Insufficient funds for maintenance have many times reduced the service rendered by existing rivers and harbors projects, with a resultant loss in the benefits which became available upon their completion.

Even though continued Federal funding of this vital Waterway is of primary importance, perhaps the most important issues confronting us now are those currently under consideration by Congress. We are disturbed by pending legislation which would provide for an escalation of user charges on our inland waterways, and the assessment of "cost-sharing" or "cost-recovery" obligations on "local sponsors" of projects which actually are not local in character but regional and even national in significance. All such proposals would require passing added costs along to the consumers, aggravating inflationary pressures which beset our economy.

Such added costs would seriously imperil the role of navigation in the competitive market place of transportation. Such issues are of major concern to all of us who are involved in the effort to develop and preserve a balanced transportation system to serve the American people with a maximum degree of efficiency.

We realize that during this period of severe Budget constraints the problems confronting Congress are indeed formidable, and that a critical scrutiny must be applied to every budgetary item. But we respectfully recommend that a long-range view be taken -- a view of the potentially serious consequences which would be suffered with the imposition of additional burdens on the users and "local sponsors" of our national waterways system. Congress has historically supported waterways which are accessible to all as a matter of vital national interest, and this far-sighted view has enabled our Nation's waterways to become the best in the world.

The assessment of additional charges on the users, and on those who participate in the development of our waterways, could have a devastating effect on struggling marginal operators and on many smaller ports which depend on the waterways for economic survival. We earnestly urge the Congress to give thorough and deliberate attention to the gravity of this problem.

I appreciate the opportunity to appear before you today in support of our Association's program, which, succinctly stated, is to promote the economic growth and development of the Gulf Coast through low-cost water transportation.

CORPUS CHRISTI SHIP CHANNEL, TEXAS

STATEMENT OF HARRY G. PLOMARITY, EXECUTIVE DIRECTOR, PORT OF CORPUS CHRISTI AUTHORITY, CORPUS CHRISTI, TEX.

Senator ABDNOR. Mr. Plomarity.

Mr. PLOMARITY. Thank you, Mr. Chairman.

My name is Harry G. Plomarity. I am executive director for the Port of Corpus Christi Authority of Corpus Christi, Tex., the local sponsor for the federally authorized Corpus Christi Ship Channel project.

I have submitted a statement for the record and I will simply summarize it at this time.

Senator ABDNOR. Thank you. Your entire statement will be made a part of the permanent record.

Mr. PLOMARITY. Thank you.

[The statement follows:]

STATEMENT OF HARRY G. PLOMARITY, EXECUTIVE DIRECTOR, PORT OF CORPUS CHRISTI AUTHORITY, TEXAS

My name is Harry G. Plomarity. I am Executive Director for the PORT OF CORPUS CHRISTI AUTHORITY of Corpus Christi, Texas (formerly Nueces County Navigation District No. 1) the local sponsor for the federally authorized CORPUS CHRISTI SHIP CHANNEL, TEXAS PROJECT.

REQUEST FOR FUNDS

I appear before you today requesting that the 98th Congress 2nd Session, appropriate the following funds which are included in the Presidents budget for FY85.

A. FUNDS TO CONTINUE CONSTRUCTION OF THE AUTHORIZED 45 FOOT PROJECT
Appropriate $10,100,000 to continue deepening of the CORPUS CHRISTI SHIP CHANNEL PROJECT in accordance with the 45-foot project authorization (Senate Document No. 99 Public Law 483, Dated August 13, 1968). The Corps of Engineers engineering capability for FY85 is the same as recommended in the President's budget.

B. FUNDS FOR OPERATION AND MAINTENANCE OF THE WATERWAY
Appropriate $6,670,000 to continue operation and maintenance of the CORPUS CHRISTI CHANNEL PROJECT during FY85. This requested appropriation is included in the President's recommended budget.

DESCRIPTION OF AUTHORIZED BUT INCOMPLETED IMPROVEMENTS

The following authorized improvements are yet to be completed:

A. Deepening the Corpus Christi Inner Harbor channels and basins from Beacon 82 (Mile 21.90) which is about one mile seaward of the Corpus Christi Harbor Bridge at the entrance to the Inner Harbor to and including the Viola Turning Basin (Mile 31.60) at the head of navigation from the existing 40 foot depth to the authorized 45 foot depth.

B. Widening the Tule Lake and Viola Channels from the existing 200-foot bottom width to the authorized 300-foot bottom width channel.

C. Enlarging the Chemical, Tule Lake, and Viola Turning Basins to provide a minimum ship turning diameter of 1,200 feet in each basin.

D. Constructing levees, weirs, drainage ditches, culverts, bridges etc. for containing the dredged material and returning the dredge effluent to the ship channel. (See Table No. 1 for levee construction in progress).

STATUS OF AUTHORIZED IMPROVEMENTS TO THE CORPUS CHRISTI SHIP CHANNEL

All improvements to the Corpus Christi Ship Channel Project (formerly Port Aransas-Corpus Christi Waterway) authorized prior to the 90th Congress, 2nd Session are essentially complete. Table No. 1 below shows the existing, the completed and the authorized dimensions of the respective reaches of this project.

DESCRIPTION OF CONSTRUCTION AND MAINTENANCE ACTIVITIES IN PROGRESS

A. DREDGING OF THE 45 FOOT INNER HARBOR PROJECT

1. An acceptable plan to the Federal Agencies, although not a 50 year plan as originally proposed for disposing of the dreged material from widening, deepending, and maintaining the Inner Harbor, including a mitigation plan has been completed, approved and the record of decision by the Division Engineer filed with EPA.
2. Two levee construction contracts have been awarded for containing the dredged material and returning the effluent to the ship channel pursuant to the approved plan. Substantial construction progress is being made. Work is ahead of schedule on both contracts.
3. Soil borings for the next levee contract, which is expected to be awarded in FY85, are expected to commence soon.
4. It is anticipated that a dredging contract for deepening the easterly reach of the inner harbor will be awarded from Mile 21.90 to about Mile 26.50 in FY85. Completion of this contract will significantly improve waterborne commerce prospects at the Port Of Corpus Christi.

TO ACCOMPLISH THE ABOVE WORK AS THE CORPS HAS SCHEDULED IT, WE URGE THAT CONGRESS APPROPRIATE THE $10,100,000 WHICH IS THE CORPS CAPABILITY FOR FY85.

TABLE NO. 1
CORPUS CHRISTI SHIP CHANNEL
EXISTING AND AUTHORIZED WATERWAY DIMENSIONS
(AS OF MARCH 1, 1984)

SECTION OF WATERWAY	EXISTING DIMENSIONS (IN FEET)		AUTHORIZED DIMENSIONS (IN FEET)	
	DEPTH MLT	BOTTOM WIDTH	DEPTH MLT	BOTTOM WIDTH
OUTER BAR CHANNEL	X	X	47	700
JETTY CHANNEL: OUTER END JETTY CHANNEL TO JETTY ENTRANCE	X	X	47 TO 45	700 TO 600
BETWEEN JETTIES	X	X	45	600
INNER BASIN AT HARBOR ISLAND	X	X	45	735 TO 1720
INNER BASIN TO FERRY LANDING AT PORT ARANSAS	X	X	45	460
PORT ARANSAS TO LA QUINTA CHANNEL JUNCTION	X	X	45	500
LAY BERTHS - PORT INGLESIDE	X	X	45	130
LA QUINTA JUNCTION TO CORPUS CHRISTI	X	X	45	400
LA QUINTA CHANNEL	X	X	45	300
LA QUINTA TURNING BASIN	X	X	45	800X1200
CORPUS CHRISTI TURNING BASIN	(1) 40	1000	45	800
INDUSTRIAL CANAL	(1) 40	400	45	400
AVERY POINT TURNING BASIN	(1) 40	1000	45	975X1050
TULE LAKE CHANNEL (AVERY POINT TO CHEMICAL TURNING BASIN)	(1) 40	350	45	400 MIN.
CHEMICAL TURNING BASIN	(1) 40	970 DIA.	45	1200 DIA.
TULE LAKE CHANNEL (CHEMICAL BASIN TO TULE LAKE BASIN)	(1) 40	200	45	300
TULE LAKE TURNING BASIN	(1) 40	900	45	1000X1200
VIOLA CHANNEL (TULE LAKE BASIN TO VIOLA BASIN)	40	200	45	300
VIOLA TURNING BASIN	40	700 TO 900	45	1200 DIA.

X WATERWAY COMPLETED TO AUTHORIZED DIMENSIONS

(1) LEVEE CONSTRUCTION UNDERWAY

(1) Statistics of the Port of Corpus Christi Authority (formerly Nueces County Navigation District #CND-No. 1). Port Authority records are maintained slightly different from those of the Corps of Engineers.

(2) Corpus Christi Commerce and Traffic includes the Corpus Christi Inner Harbor, Port Ingleside, and the La Quinta Channel. Harbor Island Commerce and Traffic is shown separately, but it is also included in the total waterborne commerce for the Port.

(3) Certain military cargoes and bunkers are excluded from the Corp's statistics. The Port includes all cargo and bunkers which move across the docks, but bunkers loaded onboard ships from barges are counted as barge cargo. The Port of Corpus Christi statistics are based upon actual records of cargo shippers and receivers.

(a) From 1973 to 1975 the Bureau of the Census failed to report most of the bauxite ore imported by Reynolds Metal Company.

(b) From 1977 through 1983, each barge is counted separately, but tugs handling the tows are not included in the total.

B. OPERATION AND MAINTENANCE OF THE CORPUS CHRISTI SHIP CHANNEL PROJECT

Maintenance dredging of the Corpus Christi Inner Harbor between Mile 21.90 and Mile 24.00 has restored this reach of the waterway to its 40 foot project dimensions. Maintenance dredging of the outer bar and jetty channels to a project depth of 45 feet is scheduled during the later part of FY84.

During FY85 two maintenance dredging contracts have been scheduled. The first contract is expected to extend from the Inner Basin at Harbor Island to the La Quinta Channel Junction, a distance of about 10 miles. A second contract is planned from the La Quinta Junction to Beacon 82, a distance also of about 10 miles.

TO ASSURE MAINTENANCE OF CURRENT PROJECT DEPTHS, THE PORT AUTHORITY SUPPORTS THE PRESIDENT'S BUDGET RECOMMENDATION OF $6,670,000 FOR FY85 WHICH IS ALSO THE CORPS OF ENGINEERS CAPABILITY

C. REVIEW REPORT ON THE CORPUS CHRISTI SHIP CHANNEL PROJECT

Information necessary to prepare a review report on requested modifications and improvements to the Corpus Christi Ship Channel Project pursuant to the House Public Works Committee resolution adopted on September 19, 1972 has been completed. Writing of the report awaits Congress establishing a policy on user charges and cost recovery for the Nation's waterways.

WE URGE THIS STUDY BE GIVEN SPECIAL CONSIDERATION AND THE RECOMMENDED IMPROVEMENTS BE "GRANDFATHERED" SINCE CONGRESS AUTHORIZED THE PREPARATION OF THIS STUDY LONG BEFORE ANY CONSIDERATION WAS BEING GIVEN TO REVISING THE NATION'S LONG ESTABLISHED WATERWAY POLICY. FURTHER WE URGE THAT THE CORPS REPORT BE EXPEDITED FOR CONGRESSIONAL APPROVAL ONCE USER CHARGES AND COST RECOVERY LEGISLATION HAS BEEN ADOPTED.

JUSTIFICATION FOR CONGRESS APPROPRIATING THE RECOMMENDED FUNDS

According to the latest statistics (1982) the Port of Corpus Christi ranks second in Texas and among the top ten Ports in the Nation in total waterborne commerce. In 1983, port commerce totaled 47,200,497 tons-up from 43,152,365 tons (PCCA statistics) in 1982. This represents a 9.4 percent increase in tonnage after having steadily declined each year since 1978.

The decline of Port Commerce during recent years is attributable generally to three factors: general economic conditions world-wide, a sharp reduction in crude oil imports and Corpus Christi's loss of a major share of its grain exports due to an explosion at the Corpus Christi public elevator which put it out of service for almost two years.

Vessel traffic (ships and barges) showed a 9.3 percent increase in 1983 over 1982. Crude oil imports and coastwise movements of petroleum products showed about a 12 percent increase in 1983 over the previous year. However, dry bulk imports and exports for the same period declined 3.4 percent which explains the 9.4 percent net increase in Port tonnage for 1983 over 1982.

TABLE NO. II
WATERBORNE COMMERCE AND TRAFFIC
THE CORPUS CHRISTI SHIP CHANNEL

	TOTAL WATERBORNE COMMERCE & TRAFFIC (ALL DIVISIONS)			CORPUS CHRISTI WATERBORNE COMMERCE & TRAFFIC EXCLUDING HARBOR ISLAND		
	COMMERCE (S. TONS)		TOTAL (2) VESSEL TRAFFIC (ONE WAY ONLY)	COMMERCE (S. TONS)		CORPUS CHRISTI TRAFFIC (2) (ONE-WAY ONLY)
YEAR	U.S. CORPS OF ENGINEERS (3)	PORT OF CORPUS CHRISTI		U.S. CORPS OF ENGINEERS	PORT OF CORPUS CHRISTI (1)(2)	
1974	(A) 35,645,004	40,896,346	8014	(A) 30,708,518	35,451,188	6443
1975	(A) 41,290,771	44,606,135	7606	(A) 35,478,454	37,945,544	5500
1976	43,492,959	48,293,793	7033	38,558,753	43,432,049	4782
1977	56,041,113	50,669,825	(e) 5446	46,732,810	53,705,517	(e) 4761
1978	54,678,296	61,246,725	(e) 6500	46,554,601	54,611,337	(e) 5529
1979	55,597,104	60,846,745	(e) 6991	46,422,792	54,121,877	(e) 6168
1980	45,087,364	53,506,420	(e) 7408	39,107,016	48,802,788	(e) 6822
1981	41,980,354	50,310,474	(e) 6786	36,000,006	47,545,612	(e) 6395
1982	*	43,152,365	(e) 5832	*	41,497,550	(e) 5500
1983	*	47,200,479	(e) 6374	*	45,363,444	(e) 6100

* NOT AVAILABLE

CONCLUSIONS:

Prior to 1983, waterborne commerce and traffic shown on Table II declined each year beginning in 1978 because of economic conditions and other factors. However in 1983, Port Commerce increased almost 10 percent to 47,200,479 tons. This tonnage alone fully justifies all previous appropriations which Congress has made to construct and maintain the Port of Corpus Christi since it was opened to world commerce in 1926. However, continued Congressional funding is needed to improve and maintain the ship channel to accomodate larger vessels and increased traffic.

The importance of the PORT OF CORPUS CHRISTI to the Nation's international trade and world commerce clearly indicates that the public interest will best be served if excessive user fees are not assessed Port users. But, if Congress in its wisdom accepts the user fee concept, such fees must be based on the value of the cargo lifted and not on the tonnage of cargo. If user fees are based on tonnage, grain exports would become non-competitive in the world market. Basing user fees on cargo tonnage would defeat the needs that this Nation has to export large quantities of grain, agricultural products and other bulk commodities to improve this Nation's balance of payments.

FUNDING REQUEST

Mr. PLOMARITY. I appear before you today requesting that the 98th Congress, second session, appropriate the following funds which are included in the President's budget for fiscal year 1985.

Funds to continue construction of the authorized 45-foot project. We urge the appropriation of $10 million to continue deepening of the Corpus Christi ship channel project in accordance with the 45-foot project authorized in 1968. The Corps of Engineers engineering capability for fiscal year 1985 is the same as recommended in the President's budget.

Funds for operation and maintenance of the waterway. We urge appropriation of $6.67 million to continue operation and maintenance of the Corpus Christi channel project during fiscal year 1985. Again this requested appropriation is included in the President's recommended budget.

In justification for Congress appropriating the recommended funds we would like to print out that according to the latest statistics the Port of Corpus Christi ranks second in Texas and among the top 10 ports in the Nation in total waterborne commerce. In 1983, port commerce totaled 47.2 million tons, up 9 percent from the previous year.

This tonnage alone fully justifies all previous appropriations that Congress has made to construct and maintain the Port of Corpus Christi since it was opened to world commerce in 1926. However, continued congressional funding is needed to improve and maintain a ship channel to accommodate larger vessels and increased traffic.

Thank you very much for permitting us to appear before you this afternoon, sir.

Senator ABDNOR. Thank you, Mr. Plomarity and you, too, Mr. Miller, for being here. You follow that large Texas delegation. We are very, very happy to have your presence here and we thank you for your testimony.

Mr. PLOMARITY. Thank you, Mr. Chairman.

Mr. MILLER. Thank you.

PREPARED STATEMENTS FROM THE STATE OF TEXAS

Senator ABDNOR. We have also received additional statements from the State of Texas covering the Brazos River basin and other Texas projects which I want to make part of the record.

[The statements follow:]

Letter From Gov. Mark White of Texas

March 23, 1984

Dear Senator Hatfield:

Please consider the attached testimony with regard to certain public works projects administered by the United States Corps of Engineers in the Brazos River Basin of Texas as being the official position of the State of Texas.

The Texas Department of Water Resources is primarily responsible for proper development and conservation of our water resources and, in that regard, carefully examines and analyzes each project. I concur with their findings and recommendations and trust the State's testimony will be carefully considered by the Committee.

Thank you for your consideration.

Yours truly,

Mark White

Mark White
Governor of Texas

STATEMENT OF THE TEXAS DEPARTMENT OF WATER RESOURCES

U.S. ARMY CORPS OF ENGINEERS INVESTIGATIONS AND PROJECTS

The Texas Department of Water Resources respectfully submits project testimony regarding Corps of Engineers projects located in the Brazos River Basin of the State of Texas.

Responsibility for Statewide planning and development of water resources rests with the Texas Department of Water Resources. The Department has been designated as the State agency to cooperate with appropriate agencies of the Federal government and with other State and local agencies in matters relating to water resource development. In order to assure orderly development of the State's water resources, the Department has formulated and adopted a comprehensive Statewide "Texas Water Plan", which under Texas statutes serves as a flexible guide for present and future water development in Texas.

The plan indicates the need for specific projects, including alternatives, to meet the State's water need and to provide National, State, and regional economic growth and stability. The Department of Water Resources maintains a continuing planning program in order to address changing economic, social, hydrologic, and environmental conditions in the State. The projects included in this statement are considered as integral elements in the State's present and future water resource development program.

SAN GABRIEL RIVER PROJECT

The authorized plan of improvement for the San Gabriel River consists of a system of three lakes in Williamson County in the San Gabriel watershed of the Brazos River Basin. Lakes Granger, Georgetown, and South Fork were authorized by the Flood Control Acts of 1952 and 1962. These lakes will provide storage for flood control, municipal and industrial water supply, and recreational benefits and are an important unit in the Corps' Brazos River Basin system of multiple-purpose water resource development projects. Deliberate impoundment of water in Lakes Granger and Georgetown was initiated early in 1980, and already almost all of the water supply to be provided by these lakes is committed under contract to meet municipal and industrial water needs in the vicinity of the lakes and in areas downstream. South Fork Lake is the only component of the project not completed.

The Texas Department of Water Resources supports the President's request for an appropriation of $200,000 to continue advanced engineering and design of South Fork Lake of the San Gabriel River Project during FY 1985.

OPERATION AND MAINTENANCE OF EXISTING PROJECTS

The Department supports appropriations to the Corps of Engineers for operation and maintenance of the following projects during FY 1985. Aquilla Lake ($492,000); Belton Lake ($1,345,000); Georgetown Lake ($744,000); Granger Lake ($698,000); Proctor Lake ($1,190,000); Somerville Lake ($1,520,000); Stillhouse Hollow Lake ($861,000); Waco Lake ($1,300,000); and Whitney Lake ($2,655,000).

CONCLUDING COMMENTS

The Texas Department of Water Resources sincerely appreciates this opportunity to provide testimony to the Committee and most respectfully urges the appropriation of funds as requested in order to accomplish properly coordinated, timely, and orderly development of these urgently needed water resource projects in the Brazos River Basin of the State of Texas.

BUREAU OF RECLAMATION INVESTIGATIONS AND PROJECTS

The Texas Department of Water Resources respectfully submits project testimony regarding Bureau of Reclamation projects in the State of Texas.

Responsibility for Statewide planning and development of water resources rests with the Texas Department of Water Resources. The Department has been designated as the State agency to cooperate with appropriate agencies of the Federal government and with other State and local agencies in matters relating to water resource development. In order to assure orderly development of the State's water resources, the Department has formulated and adopted a comprehensive Statewide "Texas Water Plan", which under Texas statutes serves as a flexible guide for present and future water development in Texas.

The plan indicates the need for specific projects, including alternatives, to meet the State's water need and to provide National, State, and regional economic growth and stability. The Department of Water Resources maintains a continuing planning program in order to address changing economic, social, hydrologic, and environmental conditions in the State. The projects included in this statement are considered as integral elements in the State's present and future water resource development program.

BEDIAS LAKE PROJECT

The Department's planning work has shown that the Houston-Galveston metropolitan area is growing rapidly and will need additional water resources development in the immediate future in order to avoid water deficits. Bedias Lake has been identified as a potential water supply project for the area and has been included in the State's plan for development since the middle 1960's. The Lake has been included as an element of the "continuing" plan to supply water for municipal and industrial purposes in the lower Trinity River Basin. The total future water requirements of the metroplex in excess of those which can be met by local supplies can be partially met from Bedias Lake.

The present administration has included in its FY 1985 budget proposal $275,000 for the second year of a four-year study program by the Bureau of Reclamation to investigate the hydrologic and economic feasibility of Bedias Lake. The future water supply needs of the Lower Trinity River Basin are increasing and we strongly request your consideration for the Bedias Lake study amount included in the President's budget for FY 1985.

COLORADO COASTAL PLAINS PROJECT

The Bureau of Reclamation is conducting this investigation in cooperation with the Department and the Lower Colorado River Authority, to determine the feasibility of water resources developments on the lower Colorado River. The primary purpose of this project is to meet the growing municipal and industrial water needs along the Texas Gulf Coast. The Department's planning studies indicate a need for this project before the year 2000.

The Texas Department of Water Resources supports the President's request for a total appropriation of $675,000 for FY 85 to complete State I and to initiate Stage II investigations for the proposed Colorado Coastal Plains Project.

SAN JACINTO RIVER PROJECT

The President's budget recommends $275,000 be provided in FY 85 to continue feasibility studies of two potential reservoir sites in the San Jacinto River Basin.

The San Jacinto River Basin and neighboring areas are growing rapidly. Much of the area has depended upon ground water to satisfy its municipal and industrial water needs in the past. The result has been a significant lowering of water levels within the area and severe land subsidence. Subsidence problems are extremely serious in that subsidence has aggravated local area drainage and flooding problems and also subjects the people and property of this region to tidal surges in the event of hurricanes.

The Department's projections indicate that additional surface water supplies will be needed in the mid-1990's in order to meet the growing demands for municipal and industrial water. Thus, the Department supports the President's recommendation for funding in FY 85 to continue the San Jacinto River Project.

BIG SANDY PROJECT

The President's budget recommends $250,000 be provided in FY 85 to continue feasibility studies of the development of a potential reservoir in the upper Sabine River Basin. This project is needed to supply municipal and industrial water for the rapidly growing area that includes the cities of Marshall and Longview.

The Department supports the President's recommendation for continued funding of the Big Sandy Project in FY 85.

LAKE MEREDITH SALINITY CONTROL PROJECT

A total of $240,000 is included in the President's FY 85 budget to continue a feasibility study to control the flow of brine from artesian aquifers which contribute saline pollution to the natural flow of the Canadian River between Ute, New Mexico and Lake Meredith which is located in Potter, Moore, and Hutchinson Counties, Texas. Salt concentrations in Lake Meredith have, during drought periods, reached a level considered undesirable for drinking water by the U.S. Public Health Service and the Environmental

Protection Agency. This is a particularly critical problem since this reservoir provides surface water to eleven cities in the Texas High Plains including Amarillo and Lubbock.

The Department supports the President's recommendation for funding in FY 85.

RIO GRANDE PROJECT
AMERICAN CANAL EXTENSION

The construction, operation and maintenance of extensions of the American Canal in El Paso, Texas was authorized in 1976 by Public Law 94-423. Several thousand acre-feet of United States waters are now being lost from the Rio Grande which could be salvaged for use within the United States by extending the lined American Canal. The president's budget recommends $950,000 be provided in FY 85 for the second year of a three-year preconstruction planning program.

The Department supports the President's recommendation for continued funding of the American Canal extension in FY 85.

NUECES RIVER PROJECT

A total of $5,318,000 is included in the President's FY 85 budget for construction of recreation facilities and fishery management activities for the Nueces River Project. The Department supports the President's recommendation for funding in FY 85.

PALMETTO BEND PROJECT

A total of $100,000 is included in the President's FY 85 budget for completion of construction on the Palmetto Bend Project. The Department supports the President's recommendation for funding in FY 85.

SAN ANGELO PROJECT

The Department supports the President's recommendation of $1,142,000 for completion of seepage control work at Twin Buttes Dam in FY 85.

IRRIGATION DISTRICTS

The Department supports the President's recommended funding during FY 85 to the following irrigation districts: Harlingen Irrigation District ($500,000); Delta Lake Irrigation District ($1,500,000); and Hidalgo County Irrigation District No. 2 ($2,500,000).

CONCLUDING COMMENTS

The Texas Department of Water Resources sincerely appreciates this opportunity to provide testimony to the Committee and most respectfully urges the appropriation of funds as requested in order to accomplish properly coordinated, timely, and orderly development of these urgently needed water resource projects in the State of Texas.

REQUEST FOR APPROPRIATIONS FOR THE U.S. ARMY CORPS OF ENGINEERS UNDER SECTION 22 (PLANNING ASSISTANCE TO THE STATES) OF THE WATER DEVELOPMENT ACT, P.L. 93-251, AS AMENDED

Section 22 of P.L. 93-251, as amended, provides authority for the Secretary of the Army, acting through the Chief of Engineers, to cooperate with any State in the preparation of comprehensive water and related resources plans for drainage basins located within the boundaries of the State. It has been the Corps' basic policy that such studies must furnish information that is needed by the State and will be used in State water planning activities. Section 22 also authorizes an annual appropriation not to exceed $4,000,000 to carry out its provisions, with the exception that not more than $200,000 can be expended in any one year in any one state.

Responsibility for Statewide planning and development of water resources in Texas rests with the Texas Department of Water Resources. The Department has been designated as the State agency to cooperate with appropriate agencies of the Federal government in matters relating to water resources planning and development, and as such, is the agency which coordinates the expenditure of Section 22 funds in Texas.

In order to assure orderly development of the State's water resources, the Department has formulated and adopted a comprehensive Statewide "Texas Water Plan", which under Texas statutes serves as a flexible guide for present and future water development in Texas. The "Plan" indicates the need for specific projects, including alternatives, to meet the State's water needs and to provide National, State, and regional economic growth and stability. The Department of Water Resources maintains a continuing planning program in order to address changing economic, social, hydrologic, and environmental conditions in the State and so that the "Plan" can be revised or updated periodically as required.

Since 1978, when Section 22 monies were first expended in Texas, annual expenditures have averaged only about $100,000 per year. During the period 1978-1982, pursuant to our request, the Corps used these funds to investigate lignite resources underlying non-federal reservoir sites proposed for future development in the Texas Water Plan. In 1983, at the Department's request, the Corps initiated a reconnaissance-level engineering feasibility study with Section 22 funds to find the most practical and cost-effective method of implementing a regional water supply system for the Sherman-Denison, Texas area. The Department has requested that the Corps utilize the Section 22 funds allocated to Texas in FY 1984 to initiate a 2-3 year study to inventory high flood hazard areas in this State. This study will identify land use, the potential for economic damages and loss of life, the frequency of significant and/or hazardous flooding, and likely alternatives for flood prevention measures within these high flood hazard areas. Once these studies are completed, we will be asking for the Corps' assistance on other essential elements of the Texas Water Plan including additional regional water supply studies, a study of the potential for use of some portions of flood storage in federally-constructed reservoirs for water supply, and a study of existing local single-purpose reservoirs to determine the feasibility of "add on" flood control storage or conversion of some of the conservation storage to flood control.

The Section 22 funded studies completed to date have contributed significantly to Texas' water resources planning and development program, but much work remains to be done. Therefore, the Department respectfully requests your support for an appropriation of $200,000, as authorized in the 1974 Water Development Act, to the Corps' FY 1985 budget for Section 22 studies in Texas, to inventory high flood hazards in Texas, including identification of land use, the potential for economic damages and loss of life, the frequency of significant and/or hazardous flooding, and likely alternatives for flood prevention measures within high flood hazard areas.

SOUTH DAKOTA WATER RESOURCE PROJECTS

STATEMENT OF HON. LARRY PRESSLER, U.S. SENATOR FROM SOUTH DAKOTA

Senator ABDNOR. I am pleased to note for the record that we have an excellent delegation here today representing my State of South Dakota led by Senator Pressler and Mr. Warren (Bob) Neufeld, secretary of the State Department of Water and Natural Resources, representing himself and the Governor.

Accompanying them are Mr. Robert Donaldson, chairman of the Belle Fourche Irrigation District; Mr. Morris Kurle, chairman of the WEB Water Development Association; and Mr. Don Faulstich, executive director of the CENDAK Water Supply System.

I want to welcome all you gentlemen and if you would, please, identify for the record the names of those who have accompanied you who are not at the witness table.

You have others in the audience, isn't that right?

Mr. NEUFELD. Yes, Senator.

Senator ABDNOR. Senator Pressler.

Senator PRESSLER. Mr. Chairman, I want to thank you for giving me this opportunity to testify and to say how strongly I feel that South Dakota has made great sacrifices in regard to flood control projects on the Missouri River. We are a State that has made great sacrifices to benefit downstream States and we are seeking some compensation for these loses. Indeed there are a number of projects that you have done a good job in pursuing for South Dakota.

Let me say I am going to put my statement into the record but basically four dams were built on the Missouri River in South Dakota and over 500,000 acres of land was flooded. In return for these sacrifices, South Dakota was promised water development. To date, these promises have been unfulfilled.

WEB RURAL WATER SUPPLY PROJECT

The first project we will be hearing about today is the WEB pipeline project in north-central South Dakota. The project will provide domestic and municipal water to approximately 30,000 people in a 10-county area. Construction work has begun on the project and water will soon be delivered to some areas. The project has a spending capability of $18.9 million in fiscal year 1985, but the administration has requested only $5 million. Funding this project at only $5 million in fiscal year 1985 will slow down construction of the project and increase its ultimate cost. Many bids have been let on this project and they are coming approximately 15 percent below cost estimates. That is just amazing and it shows the good management we have there on the WEB pipeline project. I also want to mention that, to date, materials for the project have been purchased from 18 different States. It is important that the project move forward as quickly as possible if the total cost of the project is to be held down.

BELLE FOURCHE IRRIGATION PROJECT, SOUTH DAKOTA

The Belle Fourche irrigation project, which was initially constructed in the early 1900's, is in great need of modernization. Legislation was passed last year authorizing this work but, unfortunately, it was passed too late to be included in the fiscal year 1985 administation budget request. To move the project forward, $700,000 is needed to begin planning and some early construction work in 1984 and 1985. A fiscal year 1985 appropriation for the Belle Fourche project would be a sound investment in maintaining the productivity of this pioneer irrigation project.

MISSOURI RIVER NATIONAL RECREATION RIVER

Another project that you and I have worked on that has been waiting several years to receive funding is the Missouri River National Recreation River project. The project would control bank erosion along a 59-mile stretch of the Missouri River just below the Gavins Point Dam near Yankton, S. Dak. All of the necessary studies and environmental statements have been completed. Some bank stabilization work was done several years ago in this area under the section 32 Corps of Engineers program. Many of these section 32 projects need some maintenance work or the prior investment in them will be lost. The initial program was authorized at the $21 million level. Approximately $200,000 is needed just to maintain the current projects on this stretch of the river. The administration has considered this project a new start, so no money has been requested, but it is important that some funding be made available for this project if valuable farmland and many homes are to be protected from erosion.

There are several other major projects in South Dakota that you and I have worked on that I want to mention briefly and support. They include: The continued study of the Garrison unit extension irrigation project. The administration has requested $200,000 for further study of this project, but $1.7 million is needed to complete the feasibility study and begin advance planning work; the Lake Andes-Wagner and CENDAK irrigation projects, which are included in the administration's budget request; the construction work on the Gregory County pumped storage project; and various water supply studies that the Corps of Engineers is conducting in South Dakota.

These projects are all very worthwhile and important to South Dakota.

I am well aware of the tight budget constraints that confront your committee, but feel it is important that these projects receive favorable decisions. The longer we wait to fulfill the national commitment and obligation to South Dakota, the greater the cost will be. Of utmost concern to the State of South Dakota, and particularly to the north-central region of the State, is funding for the WEB project. If this project is allowed to move ahead at maximum speed, the Federal Government will actually save a substantial amount of money because the cost of the project will be considerably below estimates.

Thank you for this opportunity.

Let me say that I think of all the States in the Union, South Dakota may have gotten the worst deal in terms of water development. We gave up a lot of farmland in our State to help flood control, to help downstream States, and the projects I mentioned are part of what we hope to get in return for our sacrifices.

Mr. Chairman, I want to thank you for your work and I stand ready to help in any way. We have some excellent witnesses from South Dakota as well as our fine secretary of water and natural resources. I am honored to be here.

Thank you very much.

STATEMENT OF HON. JAMES ABDNOR, U.S. SENATOR FROM SOUTH DAKOTA

SOUTH DAKOTA WATER USAGE

Senator ABDNOR. Thank you.

Before we begin with your testimony, I would like to set the stage just a bit by inserting into the record a table which shows that our State ranks dead last in water usage, both among the 10 States of the Missouri River basin and among all 17 reclamation States in the West. I am going to ask that, without objection, that chart be made a part of the record.

[The chart follows:]

ESTIMATED USE OF WATER IN THE UNITED STATES IN 1980

[Million gallons per day]

	Water withdrawal		
	Industrial	Irrigation	Total
Missouri Basin States:			
Colorado	910	14,000	14,910
Nebraska	2,300	9,300	11,600
Montana	280	11,000	11,288
Kansas	530	5,600	6,130
Missouri	5,800	130	5,930
Wyoming	420	4,900	5,320
Iowa	3,800	60	3,860
Minnesota	2,300	160	2,460
North Dakota	930	280	1,210
South Dakota	50	460	510
Reclamation States:			
California	12,400	37,000	49,400
Idaho	2,200	16,000	18,200
Texas	8,300	8,400	16,700
Colorado	910	14,000	14,910
Nebraska	2,300	9,300	11,600
Montana	280	11,000	11,280
Washington	1,030	6,400	7,430
Arizona	250	7,100	7,350
Oregon	520	5,900	6,420
Kansas	530	5,600	6,130
Wyoming	420	4,900	5,320
Utah	580	3,200	3,780
New Mexico	70	3,600	3,670
Nevada	240	3,100	3,340
Oklahoma	550	870	1,420
North Dakota	930	280	1,210
South Dakota	50	460	510

SOURCE: Geological Survey 1980 update to Circular 765 (1982).

SOUTH DAKOTA IRRIGATION DEVELOPMENT

Senator ABDNOR. I am also incorporating into the record a table showing the Dakotas have received less than 2 percent of the irrigation development promised us when we gave up over a million acres, under the Pick-Sloan Missouri basin program, to provide flood control for downstream States. Again I would like to make that chart a part of the record.

[The chart follows:]

State	Acres planned for development	Acres federally developed	Percent
Montana	987,130	47,782	5
Wyoming	281,560	71,773	25
North Dakota	1,288,440	9,019	1
South Dakota	981,210	15,282	2
Colorado	101,280		
Nebraska	989,445	117,230	18
Kansas	193,335	72,598	38
Total	4,760,400	393,684	8

Senator ABDNOR. I just hope this background information puts into proper perspective the funding requests you are making here today. Certainly, the attention we have received in the past is far less than was promised and far less than given to other States. And if I have anything to say about it, that is going to change.

Specifically, let me say that when Commissioner Broadbent appeared before this committee a few weeks ago, he agreed to try to find some additional funding to try to keep the WEB project closer to schedule. It may be too much to hope for enough to keep the project fully on schedule, but it is my hope the project will not be allowed to fall more than a year behind.

Second, I am pleased to note the State is advancing funds to get work underway on the Belle Fourche irrigation rehabilitation project. I understand the Bureau is receptive to working with the State to advance this work, and I trust this committee will be supportive of any agreement worked out in that regard.

Third, it is my understanding the feasibility report on the CENDAK project is nearing completion and that the Bureau is ready to move forward aggressively on the advance planning at the level of $1.9 million in fiscal year 1985.

Fourth, I understand there is agreement with our North Dakota colleagues to expedite the South Dakota water deliveries study to assess and prepare for authorization of irrigation and flood control features along the James River in South Dakota in conjunction with the Garrison unit, which the State of South Dakota fully supports in light of its potential benefits for our State as well as the commitments made under the Pick-Sloan Missouri basin program.

Last, but certainly not least, I would like to mention the Lake Andes-Wagner project because I'm told the Bureau has high hopes it will be their next new project construction start. I just hope they are right, and I will be doing whatever I can to support the local project sponsors.

Again, for the record, South Dakota has not fared well in the water development appropriations acts of the past. I am here to see that we do better in the future, and I would like to see these improvements begin here today with the requests these witnesses will be putting forth.

Mr. Secretary, I didn't mean to steal all your thunder, but I just had to say that for the record. I might say there are other people from South Dakota that are here to support you in your request today.

Mr. Neufeld.

STATEMENT OF WARREN R. NEUFELD, SECRETARY, SOUTH DAKOTA STATE DEPARTMENT OF WATER AND NATURAL RESOURCES

Mr. NEUFELD. Thank you very much, Senator.

My name is Bob Neufeld and I am secretary of the South Dakota Department of Water and Natural Resources.

I suppose I could conclude my testimony right now, Senator, after the remarks you just gave, but I would like to explain some items about the positions of South Dakota with respect to this year's water appropriation bill.

Before I do that I would like to point out that in the audience here from South Dakota is Mr. Dave Housechild from the CENDAK Water Development Corp.; Mr. Jim Lewis and Mr. Robert Duxbury. Mr. Lewis and Mr. Duxbury are on the CENDAK Conservancy Sub-District board of directors so I am sure they share that support.

Senator ABDNOR. We are very pleased for their coming all the way to Washington. I might point out there are in the audience a considerable number of other South Dakotans I know.

Mr. NEUFELD. I know some of them, too, but I am not sure they are connected with any water projects that I am aware of.

Also appearing here in Washington this week, Mr. Chairman, were Ted Spaulding, Patrick Sieh, Manager Tom Knutson, Mrs. Zastrow for the South Dakota Water and Natural Resources, and Chuck Boynton and Carol Reed for the West Brown Irrigation District. They had to leave today but they were here to continue our cooperative efforts to deliver the benefits to Garrison. We testified on behalf of the North Dakota people on Monday.

With respect to our position on this year's budget request by the administration, I am going to leave comments on WEB to Mr. Kurle; he is much more capable of doing that than I am.

Mr. Chairman, we would like to see the line item for the Garrison extension of the South Dakota water delivery study increased by up to $2 million total. We believe that we need to move right into advanced planning and we will have the initial planning report done sometime by the end of this year and we need to have funds for fiscal year 1985 in order to continue on with the advanced planning to ensure that if this is going to be developed it is coordinated with the Garrison project of North Dakota.

We are in the same position with WEB. We are asking that a total of $1.2 million be appropriated to advance planning and reconstruction design work. We need to keep moving rapidly on these projects.

With respect to the Belle Fourche irrigation project, Mr. Chairman, we are asking that where the administration provided zero, we are asking for a total amount of $1 million. This was reauthorized late last year and too late to be included in the administration's budget. If the appropriation is not made, construction on the project will be delayed by 2 years. Now that this authorization has been obtained, the Belle Fourche sponsors are providing $700,000 in non-Federal funds to initiate first-year rehabilitation work this summer.

GREGORY PUMPED STORAGE PROJECT, SOUTH DAKOTA

With respect to the Gregory County pumped storage facility, we are asking that the administration's request of $2.4 million be reduced to $1 million, the reason being that the only work that needs to be done at this present time on the project is the geological testing. The data that is generated there will be good for all time. We need to move on and that $1 million is sufficient. We do not need to design turbines, we do not need to work on financing, we do not need to work on marketing. With the new cost-sharing proposals that are being talked about in your bill and its counterpart in the House we have yet to reach an agreement between preference power customers and the investor-owned utilities for this project. We have to have both of them involved to justify its existence. So at this point we would like to see the funding reduced for greater economy until the State can get those parties together and reach an agreement on the plans.

The $1.4 million that we are requesting you reduce, we would like to see $1 million put in reserve for the Missouri National Recreational River program and $400,000 transferred to the eastern South Dakota water supply study which is in the general investigation section of the Corps' budget. Of this amount, $300,000 should be utilized for a topography survey and spoils disposal assessment in conjunction with the State's James River improvement program and $100,000 should be made available for transfer to USGS to continue the Big Sioux basin hydrology study.

Mr. Chairman, if you have any questions, I will be happy to answer them now.

[The statement follows:]

STATEMENT OF WARREN R. NEUFELD, SECRETARY, SOUTH DAKOTA STATE DEPARTMENT OF WATER AND NATURAL RESOURCES

Mr. Chairman and members of the Subcommittee, my name is Warren R. (Bob) Neufeld, Secretary of the South Dakota Department of Water and Natural Resources. It is a pleasure to present testimony today regarding South Dakota water development activities and provide you with a report on the progress we have made since my last appearance before you in April, 1983.

We already have an adequate supply of good quality water - the Missouri River - but we must develop the delivery systems necessary to obtain the potential benefits associated with this renewable natural resource. These delivery systems will provide a relatively small amount of supplemental water to sustain our crops and stabilize our agricultural economy. In addition, we want to deliver better quality water to our citizens who are currently dependent on ground water supplies which often exceed basic drinking water standards. We are doing everthing reasonably possible to help ourselves, but there is a legitimate role for the federal government in this endeavor.

I have spoken on several occasions about the federal commitment to South Dakota in conjunction with the Pick-Sloan program, established by the 1944 Flood Control Act. As host for four of the Pick-Sloan mainstem dams on the Missouri River, South Dakota has lost over 820 square miles of valuable land due to inundation caused by those dams. Although the Pick-Sloan program included a commitment to assist South Dakota in securing the irrigation necessary to combat drought periods and to compensate us for the inundated lands, we are still waiting for the federal government to fulfill this commitment.

At the state level, we have established a major water development program and have directed all available state resources toward developing our priority projects. We have created a special state water development fund to provide assistance for water project feasibility studies and for construction. We have approved a state water plan that realistically identifies our needs, priorities, and ability to accomplish our development objectives.

We have made great progress towards accomplishing our water development objectives. With the federal construction authorization obtained last year, we are ready to proceed with the Belle Fourche rehabilitation project. We have completed a feasibility report on the Lake Andes-Wagner irrigation project and are ready to proceed with pre-construction work. Very shortly, the planning report for the CENDAK irrigation project will be done. We are also in the middle of conducting the Garrison Extension multi-purpose water supply study, and will have that project ready for construction authorization in the near future. We expect to distribute over $5 million this year to support several small water and wastewater projects throughout the state, and will make another $5 million available on a loan basis to some of our major water projects.

In order to continue this progress, we need to leverage our limited financial resources. We need to combine federal funds with state funds, local funds and private funds. The state is encouraged by the recent letter from President Reagan to Senator Paul Laxalt on national water project financing. We are eager to form a new partnership with the federal government and with non-federal interests to fund water projects, based on a recognition of past federal commitments and on the ability of project sponsors to provide project financing.

There is one factor, however, that is really even more important than all of the preceding points. It is more important than the federal obligation to the state, the effort of the state to establish our priorities, and the willingness of the state to share in the cost of building water projects. It is the human factor and need manifested by the initiative and effort of the local people who have orgainzed and fought hard to obtain adequate quantities of good quality water to improve their productivity and their livelihoods.

The state and local project sponsors have raised considerable funds to support our priority water projects. In the case of Lake Andes-Wagner, for example, the involved landowners have raised $1.3 million to conduct a feasibility study and prepare a master plan for project development. Likewise, the CENDAK sponsors have raised $1 million and are preparing to obtain another $500,000 loan to support their general project investigation. The Belle Fourche project sponsors are obtaining a $700,000 loan to advance their project and initiate construction during the upcoming summer months. The state, as sponsor for the Gregory County project, has appropriated $200,000 and these funds will be matched by the involved utilities for any further analysis of this potential hydropower facility. I could provide several other examples, but the point should be clear: We recognize that the state and local project sponsors have an obligation to accept some financial responsibility for our priority projects based on our limited financial capability. We only ask the Congress to recognize this same obligation on the part of the federal government.

The state's specific FY '85 federal water resource development appropriation request is as follows:

CENDAK - We support the Reagan Administration's request for $50,000 to complete general investigation work and the $1.95 million to initiate the advanced study effort. With the completion of the project planning report this year, CENDAK will be able to begin the extensive land classification, drainage analysis and environmental assessment required to determine specific project requirements.

Lake Andes-Wagner - The $140,000 requested for advance planning work is insufficient. Since the Lake Andes-Wagner have raised considerable funds to accelerate their project and initiate project design work this year, $1.2 million should be provided in FY '85 to continue pre-construction activities.

Garrison Extension (South Dakota Water Delivery Study) - The $200,000 provided in the budget for general investigation work will not allow for timely development of this project. As a compliment to the Garrison Diversion project in North Dakota, we must accelerate the Garrison Extension project. Otherwise, we may only realize some of the potential adverse impacts instead of the preferred benefits of mutual Garrison Diversion - Garrison Extension development. We request $2 million for this effort. This amount will allow us to complete the project planning report ($300,000) and initiate the pre-construction effort ($1.7 million).

Garrison Diversion - Based on our complimentary and mutually beneficial development plan, we support the $54 million appropriation request for the Garrison Diversion project in North Dakota contingent on concurrent development of the Garrison Extension project in South Dakota.

Belle Fourche - No funds were included in the Administration's budget request simply due to the fact that the project had not yet received Congressional authorization prior to preparation of the budget. Now that this authorization has been obtained, the Belle Fourche sponsors are providing $700,000 in non-federal funds to initiate first year rehabilitation work this summer. We request $1 million to support second year rehabilitation work in FY'85. This project was reauthorized as a unit of the Pick-Sloan Missouri Basin program by Public Law 98-157 (November 17, 1983). P.L. 98-157 authorizes federal appropriations for Belle Fourche to begin on October 1, 1984.

Pactola Dam - We support the Administration's request for $1.55 million to cover spillway improvements, but advise against attaching any non-federal cost sharing requirement to this project. We understand that the Administration recognizes the federal responsibility for making these dam safety improvements, and would oppose any Congressional attempt to revise this arrangement.

Gregory County - We suggest that the Administration's request for $2.4 million to continue project planning and engineering efforts be reduced to $1 million, and the remaining $1.4 million be re-directed to other priority projects in South Dakota. Given changing growth rates and load management measures, it appears that the Gregory County hydro project will probably not be necessary until the mid-1990s. We believe that work should continue on the Gregory County project, but a revised schedule may be more appropriate. We request that $1 million be re-directed from Gregory County general investigation work to fund bank stabilization efforts under the federally authorized Missouri National Recreational River program. Also, we request that $400,000 be re-directed from Gregory County to increase funding for the Eastern South Dakota Water Supply Study. Of this amount, $300,000 should be utilized for a topography survey and spoils disposal assessment in conjunction with the state's James River improvement program and $100,000 should be made available for transfer to USGS to continue the Big Sioux Basin Hydrology Study.

Eastern and Western South Dakota Studies - We support the Administration's basic request for $240,000 and $165,000 respectively to continue the Eastern and Western South Dakota water supply studies. Although the current direction of these studies may conflict with certain state priorities and contradict the Administration's recognition of state primacy over water resources, the studies will provide extremely valuable information regarding the efficient utilization of water and related resources for water supply, flood control, water quality control, water for energy, and water conservation.

Belle Fourche Irrigation District, South Dakota

STATEMENT OF ROBERT L. DONALDSON, PRESIDENT, BOARD OF DIRECTORS, BELLE FOURCHE IRRIGATION DISTRICT

Senator Abdnor. Why don't we go ahead and have the rest of the statements.

Mr. Donaldson.

Mr. Donaldson. Thank you, Mr. Chairman.

Mr. Chairman and members of the Subcommittee of Energy and Water Development, I am Robert L. Donaldson, president of the board of directors of the Belle Fourche Irrigation District with their headquarters in Newell, S. Dak.

I would like to submit this testimony on behalf of the board of directors and water users of the district in regard to securing an appropriation for construction start in fiscal year 1985.

The legislature of the State of South Dakota has approved a bill submitted by the Governor to make funds available to the Belle Fourche Irrigation District in the sum of $700,000 in fiscal year 1984.

The $700,000 shows the interest that the State of South Dakota has in seeing the early construction start on the project. The project was not in top shape when the Bureau of Reclamation turned it over to the farmers to operate and because of that fact it has continued to deteriorate beyond the ability of the district to assess the water users for the needed replacement and improvements.

We are requesting an appropriation of $1 million for fiscal year 1985 so that the Bureau of Reclamation can have needed funding to continue the work started under the appropriation from the State of South Dakota.

We are confident that when the rehabilitation of the Belle Fourche project is completed to present day reclamation project standards, the irrigation district can maintain the system satisfactorily with project O&M funds.

It is important that construction get underway quickly: One, a saving of precious water will begin immediately; two, district O&M costs will be reduced; three, the economy will be stimulated providing needed off-farm employment for farmers facing financial hardships.

Mr. Chairman, on behalf of the water users, we thank you for the opportunity to come before the subcommittee.

Senator ABDNOR. Well, it is good to have you, Mr. Donaldson.

Mr. Don Faulstich.

CENDAK WATER PROJECT, SOUTH DAKOTA

STATEMENT OF DON FAULSTICH, EXECUTIVE DIRECTOR, CENDAK WATER SUPPLY SYSTEM, INC.

Mr. FAULSTICH. Thank you, Mr. Chairman.

My name is Don Faulstich and I am executive director of the CENDAK Water Supply System, Inc., but perhaps more importantly I am a farmer rancher living in Hyde County and I am optimistically awaiting to participate in the irrigation development of the area.

On behalf of Chairman Hauschild I do have a statement that I would like to have included in the record and if I may I will paraphrase some of it.

Senator ABDNOR. Without objection, that will be made a part of the record.

Mr. FAULSTICH. Thank you, Mr. Chairman.

As you know, CENDAK is a grassroots organization which started about 3 years ago. We assessed our landowners that wished to participate in the project on a per-acre basis to raise the funds for initial development. To date we have collected and have from time to time in excess of $300,000. The project has been progressing very rapidly and we anticipate irrigation by spring first to supplement the natural precipitation and consequently stabilizing the feed basis out there for the livestock industry.

CENDAK is fortunate to be able to participate in a new two-step planning process that was jointly developed about 2 years ago and this has greatly been able to decrease both the time required for feasibility studies as well as the moneys required for the studies. The feasibility study we hope will be released in several weeks' time.

In addition to this, legislation seeking congressional authorization for the construction of the CENDAK project was introduced by our very able and capable South Dakota congressional delegation and we are hopeful for passage of that for this calendar year. Also in late 1983, the CENDAK Water Supply System, Inc., initiated action which subsequently led to the successful formation of the new CENDAK Conservancy Sub-District. This required a vote of the people throughout the project area and I am very happy to say that it passed by a nearly 74 percent positive vote. Obviously, funding is going to be required to continue the rapid progress of CENDAK and we naturally support the administration's request of $1,950,000 for fiscal year 1985.

I might also add with regards to funding, in addition to the $300,000 that CENDAK has raised at the grassroots level, we also obtained loans from the State in the amount of $800,000 which they are obligated to be repaid at some point in time. This past legislature also approved a loan of $500,000 that we will be seeking from the State board in the near future. So we will probably be committed to a total expenditure in excess of $1.5 million.

Also attached to the statement is a copy of the resolution in support of the Senate action recently passed by the South Dakota Legislature.

If you have any further questions, Mr. Chairman, I will be most pleased to attempt to answer them.

Senator ABDNOR. Thank you.

[The statement follows:]

STATEMENT OF DAVID HAUSCHILD, CHAIRMAN, CENDAK WATER SUPPLY SYSTEM, INC.

Mr. Chairman, Members of the Subcommittee, my name is David Hauschild. I'm a farmer-rancher residing in Hughes County near Pierre, South Dakota, and I am also Chairman of the CENDAK Board of Directors. I submit this statement today on behalf of the CENDAK Board of Directors.

CENDAK began about three years ago by local people who had a desire to develop a project that would deliver water eastward from the Missouri River to the James River Basin for multi-purpose water development.

County organizations were formed in the area to coordinate activities at that level. Each county is represented on the CENDAK Board of Directors.

Early activities were financed by membership dues collected by the county organizations and by land assessments collected on approximately 400,000 acres on which landowners expressed an interest to irrigate. To date, in excess of $300,000 and many donated hours of time have been contributed by the grassroots people.

Irrigation will be by various forms of highly efficient sprinkler application on a dispersed acreage. Application rates would be as required to supplement natural precipitation.

The basic purpose for irrigation is to provide supplemental water at critical drought periods during the growing season so that stabilized feed supplies are available in the area. This, in turn, would stabilize the economic base and prevent the wild gyrations of the economic indicators often associated with drought years such as those experienced since 1976.

The USBR was contacted several years ago to ascertain their possible involvement in required feasibility studies. Several meetings with the Bureau eventually provided a new two-step planning procedure which would greatly reduce the time and costs required when compared to conventional feasibility studies. This unique approach, the first in the nation, required the joint efforts of the USBR, the State of South Dakota, and CENDAK.

Feasibility studies have been progressing rapidly. The Regional Director's Planning Report--Environmental Statement is nearly completed.

Legislation seeking congressional authorization for the construction of the CENDAK Unit was introduced by the South Dakota Congressional delegation. We anticipate passage of this important legislation during the current calendar year.

In addition, the CENDAK Water Supply System, Inc. iniated action in late 1983 which led to the successful withdrawal of the project service area from the Oahe Conservancy Subdistrict and the formation of a new CENDAK Conservancy Subdistrict. This action required a vote of the people within the area and was approved by a nearly 74% positive vote. Such action by the grass roots people of the project area can only be construed as an indication of their intense desire to seek water development.

Funding will be required to allow CENDAK to continue to progress at a rapid rate. We support the adminstration's request in the amount of $1,950,000 for FY 1985.

It is important to note that in addition to the aforementioned $300,000 contributed by the grass roots people of the CENDAK area, additional obligations have been incurred in the form of loans from the State of South Dakota. To date, $800,000 has been borrowed with an additional $500,000 loan approved by the recent South Dakota legislature.

Attached is a resolution which was recently passed by the South Dakota legislature in support of CENDAK.

I wish to thank the committee for permitting me to present this written statement. Please contact me if additional information is desired.

STATE OF SOUTH DAKOTA

FIFTY-NINTH SESSION, LEGISLATIVE ASSEMBLY, 1984

471H772 HOUSE CONCURRENT RESOLUTION NO. 1018

Introduced by: Representatives Volesky, Eichman, Gross, Oscar Hagen, Don Ham, Heidepriem and Robbennolt and Senators McClure, Harding and Kleinsasser

A CONCURRENT RESOLUTION, Requesting that the United States Congress adopt legislation and an appropriation for authorization and construction of the CENDAK project.

WHEREAS, it is the policy of the state of South Dakota that its government and citizens conserve, develop, manage and make optimum use of all of this state's water resources; and

WHEREAS, the Flood Control Act of 1944 (P.L. 534) provides for containment and development of Missouri River waters for the beneficial use of South Dakota citizens; and

WHEREAS, the agricultural economy of South Dakota is highly dependent on stable and plentiful sources of water; and

WHEREAS, the CENDAK water project is a locally initiated and supported multipurpose project that would serve the water needs of many South Dakotans; and

WHEREAS, the state of South Dakota has included the CENDAK project as one of the highest priority water projects in its state water plan; and

WHEREAS, the CENDAK project would provide major benefits to the state and the nation; and

WHEREAS, legislation has been introduced (S. 2189, First Session, 98th Congress) to authorize the Secretary of the Interior to construct, operate and maintain the CENDAK project:

NOW, THEREFORE, BE IT RESOLVED, by the House of Representatives of the Fifty-ninth Legislature of the state of South Dakota, the Senate concurring therein, that the United States Congress is requested to take prompt action to authorize and appropriate the funds necessary for the development of the CENDAK project.

Statement of Robert N. Duxbury, Chairman, CENDAK Conservancy Sub-District, South Dakota

Mr. Chairman and members of the committee, my name is Robert N. Druxbury. I am the chairman of the CENDAK Conservancy Sub-District board of directors. I also own and operate a farm unit south of Wessington, S. Dak. A portion of the land which comprises my unit is located in the project area which, hopefully, in the immediate future will receive water from the CENDAK water supply system.

The CENDAK Conservancy Sub-District consists of all of the counties of Hughes, Hyde, and Hand, and portions of Sully, Faulk, Spink, and Beadle, all of which are located in central South Dakota. The sub-district was organized on December 28, 1983, when the electorate within its boundaries established it as the result of a combined rural and urban vote in excess of 73 percent.

The sub-district is a multipurpose water development organization with taxing authority and, as such, committed to the wise and orderly development of the area's water resources. It provides an entity through which local people can express their desires regarding proposed water development projects. Contained within the sub-district boundaries are the project lands to be served by the CENDAK water supply system.

The counties which now comprise the CENDAK sub-district were originally included within the existing Oahe Sub-District, a sister organization. As a result of recently enacted State legislation, counties within existing sub-districts are allowed to withdraw and establish new sub-districts for the purpose of pursuing specific water projects. So was the case with CENDAK. The prime reason for the creation of the CENDAK Sub-District was to provide an entity whose area conformed as nearly as possible with that of the CENDAK water supply system project area. This would allow those people directly affected to proceed with its formulation while, at the same time, maintaining maximum control over the development of the project.

While, as stated earlier, the overall objective of the sub-district is multipurpose in nature, it must now be apparent the foremost reason for its creation was to assist local people with the development of the CENDAK project concept, and once the concept is fully apparent, to assist local people, if it be their desire, to bring the project into reality.

The CENDAK Conservancy Sub-District is governed by a nine-member board of directors. These directors are elected by the qualified voters residing within the sub-district. It is through these elected officials the people of the sub-district express their opinions on matters relating to water development projects within its boundaries.

Local people directly affected have for several years supported the CENDAK proposal. This is evident by the countless hours they have spent without compensation attending meetings and doing all those things necessary to move the project to its present status. Local people within the State have also contributed thousands of dollars to develop a project engineering plan. It is now the responsibility of Congress to respond without delay to the actions of these sincere people.

I am certain this committee is well aware of the importance of water development projects such as CENDAK. It would make Missouri River water available for the irrigation of thousands of acres of central South Dakota land. This would have a stabilizing effect on agriculture providing many economic and social benefits, not only to the project lands, but to the surrounding areas.

Project water made available for municipal and industrial uses, recreation, and many other incidental uses would provide additional benefits. In South Dakota, water truely is the lifeblood of progress.

The CENDAK Conservancy Sub-District board of directors supports the CENDAK water supply system project concept. We believe this support was mandated by the people within the sub-district as evidenced by the overwhelming vote which resulted in its creation. The directors urge the Committee on Appropriations to approve advance planning funds for fiscal year 1985 in an amount which will allow development of the CENDAK water supply system to proceed in an orderly and expeditious manner. In expressing this request, we speak for the vast majority of people living within the sub-district and who will be directly affected by its development.

I would like to thank the committee for allowing me this opportunity to express the sub-district's views on this matter which is of great importance to South Dakota.

WEB Rural Water Supply Project, South Dakota

STATEMENT OF MORRIS KURLE, CHAIRMAN, BOARD OF DIRECTORS WEB WATER DEVELOPMENT ASSOCIATION, INC.

Senator Abdnor. We will now hear from Mr. Morris Kurle.

Mr. Kurle. Thank you, Senator.

Mr. Chairman and members of the committee, I am Morris Kurle, chairman of the WEB Water Development Association, Inc.

It is indeed a pleasure to testify before this committee again, particularly, Senator, since you are chairing at this time.

We feel that there are several sound reasons for the subcommittee to request full funding for the WEB project in fiscal year 1985.

I am going to be very brief, Senator, because I believe you are as aware of our project as we ourselves are.

In summary, it is our request that the appropriations subcommittee consider increasing the line item appropriation for the WEB pipeline project in the fiscal year 1985 budget from $5 million to $18.9 million. Consulting engineers and the regional office of the Bureau of Reclamation have projected a construction capability in fiscal year 1985 of $18.9 million which would provide for major construction on the project and allow for a completion schedule of 1988.

Construction of the WEB project represents the first Federal construction funding for a major water project in South Dakota in 7 years, and the first new construction start.

Slightly over $10 million in construction contracts have been awarded contingent upon funds being available. Presently, $7 million in funds available for construction in fiscal year 1984 has shown previous contracts totaling $10 million have been awarded and an additional $7.5 million in construction contracts could soon be awarded if adequate funding were provided by Congress in the fiscal year 1985 budget.

The overriding factor in support of construction of the WEB project since its inception in 1975 has been the great need for good quality domestic water in the project area. The only source of domestic water for much of the area are ground wells which draw water from underground aquifers. The quality of ground water in the area is poor and in many cases does not meet the minimum Federal health and safety standards.

The WEB pipeline project enjoys strong local support, not only in the project area but in the entire State of South Dakota. This support is evidenced by the high percentage of signup in the project area, 83 percent, and the funding support provided by the State of South Dakota and the Oahe Conservency Subdistrict.

Because the project waters are delivered through a buried pipeline system it will cause no long-term disruption of farming practices and the environment. In fact, as an added benefit, all right-of-way secured for construction of the pipeline system has been given voluntarily by landowners without compensation, a fact which we feel shows the strong local support and the great need that exists for the WEB project.

The WEB project enjoys the strong and active support of the members of the South Dakota congressional delegation which includes you, Senator Abdnor; Senator Pressler and Congressman Dashcle and it also enjoys the support of South Dakota Governor William Janklow.

In conclusion, we urge the members of this committee to recognize the commitment made to South Dakota for water development by providing adequate funding for the WEB pipeline project in fiscal year 1985 to assure that the project will be completed in a timely fashion at the least possible cost to the Federal Government and to locan sponsors.

We thank you for your consideration and support.

[The statement follows:]

STATEMENT OF MORRIS KURKE, CHAIRMAN, WEB WATER DEVELOPMENT ASSOCIATION, INC.

Mr. Chairman, and members of the Energy and Water Development Subcommittee on Appropriations. I am Morris Kurle, Chairman of the WEB Water Development Association, Inc., Board of Directors, which serves as the local sponsor for construction and operation of the WEB Pipeline Project, a Bureau of Reclamation Project being constructed under Public Law 96-355 & 97-237. I have served on the WEB Board since project planning and development began in 1975. I own and operate a hardware and lumber store in Bowdle, South Dakota in partnership with my brother, and have lived in the project area all my life.

In summary it's our request that the Appropriations Subcommittee consider increasing the line item appropriation for the WEB Pipeline Project in the FY-85 Budget from $5.0 million to $18.9 million. Consulting engineers, and the Regional Office of the Bureau of Reclamation, have projected a construction capability in FY-85 of $18.9 million dollars which would provide for major construction on the project and allow for a completion schedule of 1988. Minimum funding of $12.0 million dollars is needed to assure that the project is kept on schedule, assuming additional funding is provided in FY-86 to make up the shortfall in FY-85. The President's proposed budget includes a line item of $5.0 million dollars for WEB Pipeline construction in FY-85. While we were of course grateful for this funding and recognition of support for the WEB Project, even if adequate funding were provided in FY-86 and subsequent budget years an appropriations of this level in FY-85 will delay completion of the project by one full year, from 1988 to 1989 or later. We feel there are several sound reasons for the Subcommittee to full funding for the WEB Project in Fiscal Year 1985.

1. Construction of the WEB Project represents the first federal construction funding for a major water project in South Dakota in seven years, and the first new construction start.

2. Construction of the WEB Project represent a partial compensation to the State of South Dakota for the loss of some 500,000 acres of productive farm land inundated by construction of the main stem reservoirs on the Missouri River which provide flood control and power generation for Missouri River Basin states.

3. Construction of the WEB Project means jobs for people all over the United States where pumps, pipe, and other materials are manufactured, including such states as North Dakota, Minnesota, Tennessee, Pennsylvania, Alabama, Illinois, California, Maryland, Ohio, Iowa, New Jersey, Colorado, Missouri, Kansas, New York, Indiania, Wisconsin, Oklahoma, and others (see detailed list - Attachment "A").

4. Construction contracts have allready been awarded and are in place to begin construction this spring on major project features (Intake Pumps, Water Treatment Plant, Main Transmission Line) and will be capable of providing the first water service to users in Phase I of the project area provided adequate funding is appropriated in FY-85, at least $12.0 million dollars.

5. The current construction market is favorable for construction of the WEB Project. The first five contracts came in well below the Engineers Estimate.

6. Providing adequate funding in FY-85 will assure earlier payment of loan funds by project users. Under the repayment contract for construction for the WEB Pipeline Project, repayment begins as soon as the project is entirely completed. A delay in funding extends the date when repayment will begin.

7. Adequate funding means getting good quality domestic water to the 3,000 farms and 44 towns in South Dakota who desperately need water service for human and livestock needs. Presently these farms and towns rely on ground water wells which provide poor quality water and are difficult to maintain and keep in place. One years delay could result in countless farmers and towns having to replace their well water source at great expense.

8. The total cost of the project, as estimated in the "Design Report-1983" is estimated by Project Engineers at $92.638 million dollars. As of this date, federal appropriations of $7.9 million dollars have been made available for project construction in FY-84. Appropriation of $18.9 million dollars in FY-85 will bring the total to about 28% of project

estimated cost. In order to assure timely completion of the project this adequate funding is needed in FY-85.

9. The "action requested" of the Appropriations Subcommittee is to increase the budget item for WEB Pipeline Project from the present $5.0 million dollars to $18.9 million dollars for FY-85.

Project Description

The WEB Pipeline Project, officially titled the "WEB Rural Water Development Project" consists of a pumping plant, water treatment plant, main transmission pipeline, and secondary distribution pipeline system to be constructed in 10 counties in north central South Dakota for the purpose of providing quality domestic water to towns and farms in the project area. Source of water for the project would be Lake Oahe, and inpoundment of water created by construction of Lake Oahe Dam and Reservoir and Hydro electric dam constructed by the Corps of Engineers in the early 1960's.

The area to be served by the project is shown on the attached map (See attachment B). The WEB Project service area contains 5,245 square miles and will provide domestic water for 44 towns and 3,000 farms and ranches as well as water for 532,000 head of livestock. The Project will serve approximately 8% of the State of South Dakota, and within that area approximately 83% are signed up for WEB water service.

Project construction will include 116 miles of main transmission pipeline ranging in size from 27 inch to 14 inch, and 3,401 miles of secondary transmission and distribution pipeline ranging in size from 14 inch to 1 1/2 inch. The Main Transmission line would be a high pressure line constructed of either ductile iron, steel, or other materials and the secondary transmission and distribution lines would be constructed of PVC (Polyvinylchloride) pipe.

Once the project is in operation, water will be pumped from Lake Oahe and moved 3 1/2 miles to a central treatment plant where the water will be cleaned, filtered, and treated and dispersed to project users through the pipeline transmission system. Water will sold to users on a metered basis and revenues collected will serve as a basis for the repayment of project construction loans for operation of the system. Feasibility of the Project and the project repayment capability was examined by the Bureau of Reclamation and the State of South Dakota in 1983 and approved. All construction plans and specifications are reviewed and approved by the Bureau of Reclamation and the South Dakota Department of Water and Natural Resources before bids are let and contracts are awarded. The Bureau of Reclamation, with offices in Pierre, South Dakota provide federal oversite for construction of the WEB Project, and a representative of the Bureau of Reclamation attends all meetings related to the project.

The activities of the WEB Water Development Association, Inc., includes all farms and towns signed up for WEB Water service as members, and is governed by a nine member Board of Directors which is elected by the membership at an Annual Meeting. The WEB Water Development Association Board of Directors serves as the local sponsoring entity for the WEB Project and has signed repayment contracts and documents related to construction of the project on behalf of the WEB membership.

Authority

Construction of the WEB Project was first authorized by Congress in September of 1980 by passage of Public Law 96-355, and was reauthorized through passage of Public Law 97-273 in September, 1982. (See attachment C). Project feasibility was confirmed by a completion of a "Design Report" in September, 1983 which was reviewed and approved by the Bureau of Reclamation and the South Dakota Department of Water and Natural Resources. A repayment contract was signed and entered into on September 28, 1983 by the U.S. Department of Interior and the WEB Water Development Association, Inc. for reimburseable costs associated with the project. The first construction contract for earthwork and site preparation on the Lake Oahe Pumping Plant was awarded October 13, 1983 and construction began on October 20, 1983.

Construction Contracts Awarded

As of the date of this hearing, a total of 6 contracts have been awarded for initial construction of project features. A listing of the contract, its status, total cost, and the contractor it has been awarded to is shown below.

NAME	STATUS	COST	CONTRACTOR
1. Lake Oahe Intake-Earthwork	Completed	$ 53,987.00	H.F. Jacobs and Son Aberdeen, South Dakota
2. Lake Oahe Intake-Pumping Plant	Awarded	1,768,693.00	Ranney Company Westerville, Ohio
3. Raw Water Pipeline (3.2 miles)	Awarded	614,992.00	Sornsin Construction Fargo, North Dakota
4. Water Treatment Plant (Phase I)	Awarded	3,757,600.00	Barbarossa & Sons Osseo, Minnesota
5. Rural Distribution Pipeline 1-5A	Awarded	3,746,221.00	Northern Improvement Fargo, North Dakota
6. Water Storage Tank	Awarded	113,500.00	Prairie Tank Plainfield, Illinois
		$10,054,993.00	
7. Main Storage Reservoir	Soon to be Bid	$ 600,000.00 EST.	
8. Rural Distribution Pipeline	Soon to be Bid	2,675,000.00 EST.	
9. Main Transmission Pipeline	Soon to be Bid	4,300,000.00 EST.	

Construction contracts have been awarded contingent upon funds being available. Presently, $7,000,000 in federal funds and $700,000 in local funds are avialable for construction in FY-84. As shown previously, contracts totalling $10,054,993.00 have been awarded and an additional $7,575,000 in construction contract could soon be awarded if adequate funding were provided by Congress in the FY-85 Budget. Minimum FY-85 funding of $12,000,000 would allow for construction of the Main Pumping Plant, the Treatment Plant, Transmission Pipeline, Phase I Rural Distribution, and Main Reservoir in 1985 and bring a feasibly operational portion of the project into operation. This funding level would allow for water service to approximately 600 rural users and 4 towns in South Dakota, as well as provide bulk water service to the State Line Water Coop, a rural water system being proposed for construction by the Farmers Home Administration in Emmons County, North Dakota.

Full and adequate funding of the WEB Project in Fiscal Year 1985 at a level of $18,600,000 would facilitate operation of Phase I of the WEB Project, as well as provide a base for extending the project well into Phase II and FY-86.

Funding and Repayment

Funding for construction of the WEB Project will come in the form of a $67,062,000 grant and a $21,576,000 loan from the Federal Government, with $4,000,000 in construction funding provided by WEB members hookup fees and contributions from the Oahe Conservancy Subdistrict and the State of South Dakota, for a total project cost of $92,638,000.

It should be noted that the indexed federal funding ceiling authorized by Public Law 97-273 has been estimated by the U.S. Bureau of Reclamation as of October, 1984 to be $96.0 million, and with the addition of $4.0 million non-federal funds results in an estimated actual total project cost ceiling of $100,000,000 dollars (October 1984 dollars). Therefore, estimated project construction costs are well below the authorized indexed ceiling.

Need

The overriding factor in support of construction of the WEB Project since its inception in 1975 has been the great need for good quality domestic water in the project area. The only source of domestic water for much of the area are ground wells which draw water from underground aquifers. The quality of groundwater in the area is poor and in many cases does not meet the minimum federal health and safety standards. It is estimated that from 20% to 25% of the water consumed in the area is not fit for human consumption. Poor quality water reduces animal production and results in health problems in humans as well as livestock.

In addition ground wells are difficult to maintain and costly to replace. The estimated life of deep artesian wells in the western portion of the project area is estimated at from 10 to 12 years and requires a replacement cost of $20,000-$25,000 to replace. This high maintenance and replacement cost along with the effects of poor quality water, is causing a hardship and burden for farmers, ranchers, livestock producers, and towns in the area.

Construction of the WEB Pipeline Project will provide good quality domestic water to a substantial portion of South Dakota at a reasonable cost and will allow ranchers and farmers the opportunity to purchase their water supply on a muntly basis, rather than have to face a major capital cost outlay for a well every 10 to 15 years. The WEB Water Development Association submits that this will provide assistance to farmers and rancers in the area and may make it possible for them to stay on the land and remain in agriculture for a longer period of time. The WEB Project will also add to the economic stability of the project area by providing jobs, and freeing capital for other purchases.

WEB Water rates, which serve as the basis for loan repayment, will result in an average estimated rural water bill for farms and ranches of approximately $50 per month based on a water use of 19,000 gallons. This rate is comparible, slightly higher, than water rates paid by water users on similar rural water systems in operation in South Dakota and other midwestern states. Bulk water service will be provided to towns at rates varying from $1.22 per thousand to $1.79 per thousand, depending upon the towns water storage capability.

Local Support

The WEB Pipeline Project enjoys strong local support, not only in the project area but in the entire state of South Dakota. This support is evidenced by the high percentage of signup in the project area (83%) and the funding support provided by the State of South Dakota and the Oahe Conservancy Subdistrict which is the regional "water district" in which the project is located. The Oahe Conservancy Subdistrict is contracted to provide grant funding of up to $3,100,000 toward construction of the project and the State of South Dakota has offered to provide loan funds of $600,000 for project construction.

Because the project waters are delivered through a buried pipeline system it will cause no long term disruption of farming practices and the environment. In fact, as an added benefit, all right-of-way secured for construction of the pipeline system has been given voluntarily by landowners without compensation, a fact which we feel shows the strong local support and the great need that exists for the project.

The WEB Pipeline Project enjoys the strong and active support of the members of the South Dakota Congressional Delegation which includes Senator James Abdnor, Senator Larry Pressler, and Congressman Tom Dashcle, and it also enjoys the support of South Dakota William Janklow.

Conclusion

In conclusion we urge the members of the Energy and Water Development Subcommittee on Appropriations in both the House and the Senate to recognize the committment made to South Dakota for water development by providing adequate funding for the WEB Pipeline Project in Fiscal Year 1985 to assure that the project will be completed in a timely fashion at the least possible cost to the federal government and to local sponsors. Thank you for your consideration and support.

FACTS

WEB RURAL DEVELOPMENT PROJECT

Population Served	· 21,937 people (83% of people in service area)	
	· 44 towns	12,675 people
	· 2,985 rural taps *	9,262 people
	· 170 rural taps (North Dakota)	600 people
	· 531,918 livestock (cattle equivalent use 401,000)	
	* as of April, 1983	
Area Served	· 5,245 square miles (larger than State of Connecticut)	
	· 10 county area · north central South Dakoa	
	· 140 miles long x 90 miles wide (240 miles from furthest points)	
Project Facilities	· Storage Reservoir Capacity	8,084,000 gallon
	· Lake Oahe Intake & Pumps	4,861 GPM
	· Water Treatment Plant	7.7MGD · peak
	· Main Transmission Line (27"-14")	116 miles
	· Secondary Trans. & Dist. Line (14"-1½")	3,401 miles
	· Reservoirs & Storage Tanks	17
	· Total Miles of Pipeline	3,517 miles
	· Pipeline Depth (from top of pipe)	6 to 7 feet min.
Project Cost	· Total Cost (estimate)	$92,638,000
User Cost	· Monthly minimum/rural household	$25
	· Average estimated rural bill (based on 19,000 gallons per month)	$50
	· Municipal water avg. cost Class A town	$1.22 per/1000
	· Municipal water avg. cost Class C town	$1.79 per/1000
Funding	· Federal loans and grant	$88,638,000
	· State, Oahe Subdistrict, WEB users	$ 4,000,000
Authority	· U.S. Department of Interior · Bureau of Reclamation	
	· Authorized by Congress (PL 973)	September 1982
	· Final Plans & Spec's	September 1983
	· Repayment Contract Signed	September 28, 1983
	· First Contract Award	October 13, 1983
	· Construction Begun	October 20, 1983

(prepared by the WEB Water Development Association, Inc.)

WEB Board of Directors and Staff:

Morris Kurle, Bowdle, SD · Chairman
Marland Eldredge, Ashton, SD · Vice-Chairman
Kenneth Brockel, Java, SD · Secretary
Robert Yoder, Aberdeen, SD · Treasurer
Merle Kosters, Selby, SD · Director
Lauren Stager, Cresbard, SD · Director
Edward Blank, Roslyn, SD · Director
Orvile Baer, Roscoe, SD · Director
Dean Lemburg, Selby, SD · Director
Curt Hohn, Project Coordinator
Tammy Bierman, Secretary-Bookkeeper
Les Simon, Right-of Way Agent

WEB Major Suppliers

Contract 1-1B - Intake

Reinforcing Steel - Unknown
Major Electrical Equip. - General Electric
Pumps - Layne-Bowler Memphis, TN 38108
Building - Varco-Pruden Memphis, TN 38117
Telemetry - *Aquatrol Corp. St. Paul, MN 55113
Steel Pipe & Fittings - Unknown
Valves - * Dresser Mfg. Div., Dresser Industries
Bradford, PA
Surge Control Equip. - Fluid Keniks (City Unknown)

Contract 1-2 - Raw Water Line

Pipe - U.S. Pipe Box 10406
Birmingham, AL 35202
Fittings - *U.S. Pipe Box 10406
Birmingham, AL 35202
Telemetry Cable - Unknown
Air Valves - Apco/Valve & Primer Corp.
1420 S. Wright Blvd.
Schaumburg, IL 60193
Valves - Henry Pratt Company
401 S. Highland Ave.
Aurora, IL 60507

Contract 1-3 - Treatment Plant

Building - Varco Pruden (See Above)
Telemetry - *Aquatrol (See Above)
Reinforcing Steel - Paper, Calmenson & Co.
P.O. Box 43432 St. Paul, MN
Pipe & Fittings - *U.S. Pipe (See Above)
Valves - *Dresser (See Above)
Pumps - Aurora Pump City of Industry, CA
Travelling Bridge - *Environmental Elements Corp.
Baltimore, MD
*Richards of Rockford
Rockford, IL
*Westmont Industries
Sante Fe, CA
*Chemineer Inc.
*Philadelphia Mixers Corp.
King of Prussia, PA
Process Equipment - Dayton, Ohio
Filter Underdrains - *Leopold Co. Zelienople, PA 16063
Filter Media - *Northern Gravel Co. Muscatine, Iowa 52761
Chemical Feed Equip. - *Wallace-Tiernan
St. Belleville, NJ 07109
Chlorine Equip. - *Wallace-Tiernan (See Above)
Electrical Control Equip. - *General Electric
Standby Generator - *Catepillar - Peoria, IL
Lab Equipment - *Hach (See below)
Lab Test Equipment - *Hach Co. Loveland, CO 80539
Steel Specialities (Grating, etc.) - Unknown
Plumbing Fixtures & Supplies - Unknown
Raw Water Tank - Aquastore Dekalb, IL
Fence (Chain link) - Unknown
Paint & Painting - *Tnemec Kansas City, MO 64141
Concrete Formwork - Symons Corp. 9301 Penn Ave., So.
Bloomington, MN 55431

Contract 1-5A & 1-6A

PVC Pipe & Fittings - *Northern Pipe Fargo, ND
*Certainteed McPherson, KS
Gate Valves - *Kennedy Valve Manufacturing Co.
Elmira, NY
Brass (Saddles, ball valves, setters, etc.) - *Ford Meter Box Co., Inc. Wabash, IN
Pumps - *Peerless Pump Inc. Indianapolis, IN
Meters - *Badger Meter Inc. Milwaukee, WI 53223
Air Release Valves - *Apco (See Above)
Meter Pits - *McCullough Industries Inc.
Murfreesboro, TN 37133
Control Valves - *Cla-Val Co. Box 1325
Newport Beach, CA 92663
Tank - Prairie Tank Plainfield, IL
or
Southwestern Porcelain Sand Springs, OK

Note: Above information based on information supplied by the Contractors on Bidding Documents or Submittals. Names preceeded by an * are our best guess as to probable supplier at the present time. Actual suppliers will be based on approved Contractor's Submittals.

WEB Contracts Awarded vs Estimated Cost

	Engineer's Estimate	Actual Bid	
1. Lake Oahe Intake-Earthwork Contract	$ 90,000	$ 53,897	(-36,103)
2. Lake Oahe Intake-Pumping Plant	1,654,000	1,768,693	(+11,4693)
3. Raw Water Pipeline (3.2 miles)	722,000	614,992	(-107,008)
4. Water Treatment Plant-Phase I	3,900,000	3,757,600	(-142,400)
5. Rural Distribution Pipeline-Phase 1-5A	4,298,392	3,746,221	(-552,171)
6. Storage Tank-Contract 1-6A	125,000	113,500	(-11,500)

Actual Bid vs Engineer's Estimate..........................$734,489

INCREASED PROJECT COSTS

Senator ABDNOR. Thank you, Mr. Kurle.

I want to ask, have you or your engineers bothered to estimate the additional cost to complete WEB if funding is delayed? I understand you are getting some very low bids, is that right?

Mr. KURLE. Yes, now the 15 percent below the engineer's estimate, even lower than what the engineer's estimate was last summer. If we were to receive the full funding of $18.9 million, the completion date if money continued on time would be 1988. If that level were reduced to $12 million, the completion date would be 1989 and if it remained at the $5 million, the completion date would be about 1990 taking into consideration that 1986 and 1987 funds have to come in accordingly.

Originally in 1982 the project cost was in the neighborhood of $70 million which was indexed in 1983 by the Bureau to 1992 and in October of this year it has been indexed at $100 million. With adequate funding we can build the project for well below the indexed ceiling costs. I cannot give you the figure, I don't have it with me. I am sorry.

Senator ABDNOR. That is not just one bid, all your bids have been running about 15 percent low.

Mr. KURLE. Right. I don't have it in my book, it is in the back sheet of the testimony that was handed in.

Senator ABDNOR. This lists the various bids as you received them.

Mr. KURLE. We have awarded six bids to date and five of the six bids came in well below the engineer's estimate. One was for just slightly higher.

Senator ABDNOR. The record will show that.

Mr. KURLE. If they need help, I can find it for them.

STATE SUPPORT FOR WATER RESOURCE DEVELOPMENT

Senator ABDNOR. I am sure it is in the record.

Mr. Neufeld, one of the difficulties I must confess that we have raised against us here in Congress is the attitude that South Dakotans don't know what they want—we have been through this since I have been in Congress— and we cannot speak with one voice. Now I imagine our Governor would have something to say about that. Would you like to tell this committee, for the record, about the State water planning process and what is going on?

Mr. NEUFELD. Mr. Chairman, I would be happy to. As you know, we in South Dakota are proceeding on a large number of fronts at one time, not only with respect to water projects that are being reviewed by this committee and the authorizing committees in Congress, but the smaller projects that are proceeding under the Federal Government and other sources. In order to make a decision there are, of course, more things to be done than money to do it and someone has to establish the priority process in order to accomplish things in a rational manner. It is better to complete one project and not start seven others.

Now in order to do that the legislature and the Governor have proposed and adopted a statewide water planning process that has priorities. First of all, the elimination of threats to public health both from the standpoint of clean drinking water and water quality in our streams. I am happy to say that with respect to that first goal, since Governor Janklow has been Governor, we have accomplished and eliminated probably close to 90 percent of the drinking water problems that exist in the State of South Dakota. We think we are well on the way to accomplishing that goal.

The second goal is to facilitate, stabilize, and expand the economic development in the State of South Dakota. As you know, those dams in the State of South Dakota represent a great deal of wealth because they are owned by the Federal Government—we cannot tax them, we cannot share in the power revenues, and all the benefits are being exported to other States; in other words, increase in tax bases, increases in employment, and we see less and less and less and less ability in our agricultural production.

So we want to expand the economic base of the State. What we have done is we have identified projects that local people want to pursue. We are not asking to send people to irrigate their farms; they are asking us to help them irrigate. We find projects that our people want to pursue and establish a priority process which the legislation enforces and we then come to Washington and tell our story and we try to make projects on that basis.

Senator ABDNOR. Well, thank you. I think the record on this clearly shows that South Dakota is more and more speaking together with one voice and the legislature has been very supportive, am I not correct in stating that?

Mr. NEUFELD. They are very happy that we have been able to develop a process that is making some sense out of the water development objectives for the State of South Dakota.

Senator ABDNOR. Thank you, Mr. Neufeld. You know, Mr. Donaldson, over the years there has been strong local support for your project; I have rarely heard anyone saying anything negative about it at all. Everyone is positive and hoping we could get it moving.

Now, what do you hope to accomplish in the next fiscal year with the funds provided by the State and with those that you are requesting from the Bureau? What would that accomplish? Could you tell us for the record?

Mr. DONALDSON. Yes. The $700,000 provided for the State of South Dakota will be used for design data for the Bureau of Reclamation to get all their papers in order for bid let for the construction. Then the Bureau tells us because of this time of the year bidding of the $700,000, they don't have a full year to spend it so they would only need $1 million for fiscal year 1985 for that is all the construction work they could do in fiscal year 1985. So, we ask for a quarter million dollars.

Senator ABDNOR. We hope this all takes place before the budget.

Mr. DONALDSON. We would be delayed by at least 2 more years anyway if we did not get the appropriation for fiscal year 1985. Senator, we have been at this since about 1978 so I believe we are getting a little anxious whether we are ever going to do anything.

Senator ABDNOR. Well, let's hope we can do it all.

One last question of Mr. Faulstich. I know the great undertaking your group has done in getting together all the necessary information you have had to get in order to get things moving again, which I am sure serves as a model for others trying to develop projects, as a way to get things accomplished.

Could you comment on how the Bureau's planning process has worked in your case as far as working and making decisions on a timely basis?

Mr. FAULSTICH. Yes, Mr. Chairman. I believe we basically have been very brief with it. As I understand it, current feasibility studies are nearly complete, as I said earlier in my remarks. They cost about a third of what the conventional feasibility studies have cost in the past and also the time required has been a third to a half of the time period that was required in the past. I believe by having input from both the State and the local grassroots people that the State process has been much more receptive and responsive to the desires of the local people and, consequently, the project will be designed more toward the wishes of the local people to solve our problems.

Senator ABDNOR. You have certainly had the experience of the past to do this. I know you gave this careful consideration and this has enjoyed the support of many people involved in the area today.

EXTENSION OF THE GARRISON UNIT INTO SOUTH DAKOTA

There is one thing I want to get clear for the record, Mr. Neufeld. Speaking of the Garrison project along the James River in our State, and concern about what is going to happen, some people in South Dakota have opposed the Garrison project. Could you explain for the record why the State of South Dakota supports Garrison?

Mr. NEUFELD. I would be happy to, Senator Abdnor.

We examined this when Governor Janklow was first elected and we found there was some real reason for concern with respect to the James River in South Dakota. We reduced average flows and checked potential flooding problems during the winter. Unlike some other sister States that I could mention that take route one through the courts, we thought we would be a little more constructive and see if there is not some way we could cooperate to solve these problems that are presented to the State of South Dakota. People in North Dakota were so surprised at our approach they have even cooperated and we are moving ahead.

We have a concept which will allow the delivery of water to the Garrison diversion without any substantial alteration to the reservoir in North Dakota that could provide up to 160,000 new feet of additional water in the James River. This would be enough water to fully irrigate 22,000 acres in South Dakota and 71,000 acres in new irrigation without interfering with the ability to control it. It would also include the general water quality of the James River in South Dakota in providing recreational, fishing, wildlife purposes, and we feel that is a much better avenue to approach the problems in South Dakota than joining in lawsuits to try and deprive our sister State of the development it deserves for South Dakota residents.

Senator ABDNOR. I could not agree more. Yours is a perfect example of turning the negative into a positive here.

Mr. NEUFELD. Governor Janklow assisted me with funds, Senator.

Senator ABDNOR. That is great.

I am sure the committee will take note of the suggestion to reduce funding for the Corps' Gregory project from $2.4 million to $1 million. Of course, we could use the $1 million for the Corps' east Dakota study, is that correct?

Mr. NEUFELD. We are proposing that $1 million be directed to the Missouri National Recreation River and $400,000 to the east Dakota study.

Senator ABDNOR. $400,000; is that the project now being studied?

Mr. NEUFELD. Yes, sir. They are looking at a number of alternatives to bring water into eastern South Dakota. The Corps is also assisting us with respect to the hydrology study and we would like to get involved.

Senator ABDNOR. Revenue of $400,000?

Mr. NEUFELD. Yes, sir.

Senator ABDNOR. You say additional funding is needed, too, for the Missouri National Recreation River.

Mr. NEUFELD. Absolutely. That has been stalled for lack of appropriations. We would like to see the first piece of work that will be done on bank stabilization be on the South Dakota side of the river.

Senator ABDNOR. Gentlemen, thank you very much for your interest.

Mr. KURLE. Mr. Chairman, if I may for the record, I would like to recognize five important members who accompanied me on the trip but had to leave due to travel requirements. If I may, they were Lauren Stager of Cresbard, Chuck Seaman of Warner, Floyd Meidinger of Leola, Greg Rahm of Turton, and your friend Oscar Huber.

Thank you.

Senator ABDNOR. I know they are all arguing with strong support of the WEB and on behalf of it.

Let me say, if I may mention, that your report is submitted in excellent and timely fashion; it is excellent background material for judgment here in the days ahead.

Mr. KURLE. Thank you.

Senator ABDNOR. We thank you all. We have water needs in South Dakota and I think we have been a long time waiting. We are going to do everything possible to convince the committee and everyone else associated with the committee that we are here to start moving this water in South Dakota. You and your people are willing to come all this distance to testify and we certainly think it gives us a better understanding of it.

SUBCOMMITTEE RECESS

We thank you for your presence here today.

With that we stand in recess until 10 a.m. tomorrow.

[Whereupon, at 3:40 p.m. Wednesday, April 4, the subcommittee was recessed to reconvene at 10 a.m. Thursday, April 5.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 1985

THURSDAY, APRIL 5, 1984

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10:10 a.m. in room SD-192, Senate Dirksen Office Building, Hon. Mark O. Hatfield (chairman) presiding.

Present: Senators Hatfield and Mattingly; also present: Senators Cranston, Warner, Trible, and Wilson.

NONDEPARTMENTAL WITNESSES

ENERGY RESEARCH AND DEVELOPMENT PROGRAMS

Chairman HATFIELD. The subcommittee will come to order.

Again, I will urge that the members and witnesses today be mindful of the time as well as the number of witnesses wishing to testify. We will receive your full written statements for inclusion in the record and request that you summarize or highlight them where possible.

We are very happy at this time to receive our good colleagues from the State of Virginia, Senator Warner and Senator Trible, along with Mr. Harry Holmgren and Dr. James McCarthy.

Mr. HOLMGREN. Dr. McCarthy is not here.

Senator WARNER. He should be here shortly. If he is not, this would be the first time in 3 years that he has failed to appear.

Chairman HATFIELD. Serious business has prevented him from being here if he has such a record.

Senator WARNER. He has put his life's work into this project, Mr. Chairman.

Chairman HATFIELD. Gentlemen, if he wishes to submit written testimony for the record, we will be very pleased to receive it.

Again, it is a great pleasure always to have our close personal friends from Virginia here this morning. We always start out with a plus, with me, when you come before this committee for a request, and I am predisposed to try to do my best to see that it happens.

CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY

STATEMENT OF HON. JOHN W. WARNER, U.S. SENATOR FROM VIRGINIA

Senator WARNER. We appreciate those kind words.

Dr. McCarthy has arrived.

Chairman HATFIELD. His record is now 100 percent.

Senator WARNER. I will be very brief, Mr. Chairman.

I appreciate the opportunity to testify here this morning on the administration's request for $7 million in fiscal year 1985 funding for the Southeastern Universities Research Association project.

The next paragraph of my brief statement identifies the universities that are a member of SURA and a number of the members of this committee represent States that contain these participating educational institutions.

The commitment of those of us from SURA States is extremely strong as evidenced not only by the Members here in Congress, but also by the financial contribution of our States, local governments, and universities.

This project, Mr. Chairman, has been judged by a panel of America's most eminent physicists as being superior to other competing proposals submitted to the DOE.

The fact that their proposed project has been selected for construction is a credit to their creativity and knowledge of design of advanced accelerator facilities. That is why I am particularly pleased to have two of those scientists at the witness table this morning, and the Chair has already recognized those witnesses.

Mr. Chairman, at this time I am joined by my distinguished colleague, Senator Trible, who will take a few minutes.

[The statement follows:]

STATEMENT OF SENATOR JOHN W. WARNER

THE SOUTHEASTERN UNIVERSITIES RESEARCH ASSOCIATION (SURA) IS A CONSORTIUM OF 29 UNIVERSITIES LOCATED IN 10 STATES AND THE DISTRICT OF COLUMBIA FORMED FOR THE PURPOSE OF MANAGING LARGE COOPERATIVE PROJECTS IN SCIENCE, ENGINEERING AND MEDICINE. MEMBER UNIVERSITIES INCLUDE:

VIRGINIA:
NORFOLK STATE
GEORGE MASON UNIVERSITY
UNIVERSITY OF VIRGINIA
UNIVERSITY OF RICHMOND
VIRGINIA COMMONWEALTH UNIVERSITY
VIRGINIA STATE UNIVERSITY
COLLEGE OF WILLIAM AND MARY
HAMPTON INSTITUTE
OLD DOMINION UNIVERSITY
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

MARYLAND:
UNIVERSITY OF MARYLAND, COLLEGE PARK

DISTRICT OF COLUMBIA:
AMERICAN UNIVERSITY
CATHOLIC UNIVERSITY OF AMERICA
GEORGE WASHINGTON UNIVERSITY
GEORGETOWN UNIVERSITY

NORTH CAROLINA:
DUKE UNIVERSITY
UNIVERSITY OF NORTH CAROLINA, CHAPEL HILL
NORTH CAROLINA STATE UNIVERSITY

SOUTH CAROLINA:
CLEMSON UNIVERSITY
UNIVERSITY OF SOUTH CAROLINA

ALABAMA:
UNIVERSITY OF ALABAMA, BIRMINGHAM
AUBURN UNIVERSITY

GEORGIA:
GEORGIA INSTITUTE OF TECHNOLOGY

LOUISIANA:
LOUISIANA STATE UNIVERSITY, BATON ROUGE

FLORIDA:
FLORIDA STATE UNIVERSITY
FLORIDA INSTITUTE OF TECHNOLOGY
UNIVERSITY OF MIAMI

KENTUCKY:
UNIVERSITY OF KENTUCKY

TENNESSEE:
UNIVERSITY OF TENNESSEE, KNOXVILLE

THE PROPOSAL TO DEVELOP THE CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY (CEBAF) AT NEWPORT NEWS, VIRGINIA IS THE CONSORTIUM'S FIRST PROJECT.

THE ACCELERATOR WOULD BE USED TO INVESTIGATE PROPERTIES OF THE SUBATOMIC WORLD OF THE NUCLEUS OF ATOMS WHICH IS DESTINED TO BECOME A NEW FRONTIER OF NUCLEAR PHYSICS IN THE COMING DECADE. THE SO-CALLED "QUARKS" AND "GLUONS" THAT MAKE UP THE PROTONS AND NEUTRONS OF ATOMS WOULD BE AROUSED BY COLLISIONS WITH HIGH-SPEED

ELECTRONS PRODUCED BY THE ACCELERATOR. THOSE ENERGIZED QUARKS WOULD THEN BE FREE TO MOVE AROUND IN THE NUCLEUS, AND IN SO DOING, WOULD CAUSE THE NUCLEUS TO EXHIBIT NEW PROPERTIES THAT COULD HELP REVEAL NEW SECRETS OF MATTER.

THE INTENSITY (NUMBER OF PARTICLES PER SECOND) OF THE BEAM IN COMBINATION WITH MULTI-GEV ENERGY AND UNIQUELY HIGH DUTY FACTOR (CONTINUOUS RATHER THAN PULSED BEAM) WILL MAKE CEBAF UNIQUE IN THE WORLD.

ALTHOUGH THE SURA ORGANIZATION HAS BEEN IN EXISTENCE FOR LESS THAN FOUR YEARS, SURA MEMBER INSTITUTIONS HAVE PLAYED A MAJOR ROLE FOR MORE THAN A DECADE IN PROVIDING THE SCIENTIFIC JUSTIFICATION THAT LED THE U.S. NUCLEAR SCIENCE COMMUNITY TO RECOMMEND A 4 GEV ELECTRON ACCELERATOR. SURA SUBMITTED AN INITIAL PROPOSAL FOR A 2 GEV ELECTRON ACCELERATOR WITH PLANS FOR UPGRADING TO 4 GEV TO THE DEPARTMENT OF ENERGY AND THE NATIONAL SCIENCE FOUNDATION IN 1980, TWO YEARS BEFORE SIMILAR PROPOSALS WERE SUBMITTED BY COMPETING GROUPS.

THE DEPARTMENT OF ENERGY/NUCLEAR SCIENCE FOUNDATION'S NUCLEAR SCIENCE ADVISORY COMMITTEE (NSAC) HAS DEVELOPED A LONG RANGE PLAN FOR BASIC NUCLEAR RESEARCH IN THE U.S. THE 1983 LONG RANGE PLAN REAFFIRMS NSAC'S APRIL 1983 RECOMMENDATION THAT CONSTRUCTION OF A 4 GEV CONTINUOUS ELECTRON BEAM FACILITY BE INITIATED AS SOON AS POSSIBLE.

BY 1983, FIVE INSTITUTIONS FORMALLY SUBMITTED PROPOSALS TO THE DOE TO DEVELOP THE ACCELERATOR. THE DOE AND NSF REQUESTED THAT NSAC ESTABLISH AN AD HOC PANEL TO REVIEW AND EVALUATE THE FIVE PROPOSALS AND RECOMMEND THE FACILITY WHICH WOULD BEST MEET THE U.S.' NEEDS FOR BASIC NUCLEAR RESEARCH WITH ELECTROMAGNETIC PROBES. THE "PANEL ON ELECTRON ACCELERATOR FACILITIES" WAS CHAIRED BY THE DISTINGUISHED PROFESSOR D. ALLAN BROMLEY OF YALE UNIVERSITY.

Following public presentations, site visits, and written critiques, this panel reported its findings to the DOE/NSF Nuclear Science Advisory Committee on April 22 and 23, 1983. In an April 29 letter to DOE and NSF, the Chairman of NSAC transmitted the Panel report with NSAC's full endorsement and recommendation that the report be implemented without delay.

As its principal recommendation, the Panel on Electron Accelerator Facilities recommended "that the proposal submitted by SURA be accepted and funded for the construction of a new accelerator centering on a 4 GeV linear accelerator-stretch ring capable of delivering intense, high duty factor, electron beams in the energy range from 500 to 4000 MeV."

Needless to say, Mr. Chairman, I was extremely pleased that these committees of some of America's most eminent physicists judged the SURA proposal superior to all others submitted. I understand that the technical quality of the design and the ability of SURA to develop the facility were given the greatest importance, but that other factors were considered, such as the impact of the proposed accelerator on graduate education, the ability to attract top, new personnel into nuclear physics, and the creativity and knowledge of the SURA scientists who designed it.

The President of the American Physical Society, Dr. R. E. Marshak, has stated: "... the procedures used by the Bromley Panel were extremely careful and even-handed... The painstaking step-by-step procedures adopted are clearly a model of fairness and responsibility, and I urge that its carefully constructed recommendations be considered with equal care."

The commitment of those of us from the SURA member states to this project is an extremely strong one, as evidenced not only by

THE INTEREST HERE IN THE CONGRESS, BUT ALSO BY THE CONTRIBUTIONS OF STATE AND LOCAL GOVERNMENT AND MEMBER UNIVERSITIES.

APPROXIMATELY $1.5 MILLION IN STATE AND UNIVERSITY DOLLARS HAVE BEEN EXPENDED ON CEBAF TO DATE. FUNDS FOR FIVE GOVERNORS' DISTINGUISHED CEBAF PROFESSORSHIPS, FOUR OTHER SENIOR POSITIONS, AND ELEVEN JUNIOR PERSONNEL WILL BE PROVIDED BY VIRGINIA STARTING JULY 1, 1984. OTHER SUPPORT BRINGS VIRGINIA'S TOTAL CONTRIBUTION TO MORE THAN $1.5 MILLION FOR THE NEXT TWO YEARS. THE SUPPORT FOR THE NINE SENIOR POSITIONS AND 17 ADDITIONAL STATE POSITIONS IS EXPECTED TO CONTINUE FOR THE LIFE OF THE PROJECT.

THE SURA UNIVERSITIES ARE COMMITTED TO PROVIDE A TOTAL OF AT LEAST 35 ADDITIONAL TENURE STREAM POSITIONS IN NUCLEAR PHYSICS UPON APPROVAL OF THE CEBAF. THESE POSITIONS REPRESENT A SIGNIFICANT INCREASE IN TOTAL UNIVERSITY INVOLVMENT IN NUCLEAR PHYSICS AND SHOULD YIELD AN INCREASED FLOW OF YOUNG HIGHLY TRAINED NUCLEAR SCIENTISTS TO PROVIDE THE MANPOWER NEEDED TO ADDRESS NEW FRONTIERS IN NUCLEAR SCIENCE AND TO CONTRIBUTE TO THE NEEDS OF THE NATION FOR HIGHLY QUALIFIED TECHNICAL MANPOWER.

THE U.S. NOW FACES SERIOUS INTERNATIONAL CHALLENGES TO ITS ECONOMIC PROSPERITY AND NATIONAL SECURITY, AND IT IS ESSENTIAL THAT WE CONTINUE OUR PURSUIT OF EXCELLENCE IN SCIENCE AND TECHNOLOGY. IF THE FEDERAL GOVERNMENT IGNORES THE ADVICE WHICH IT SOUGHT ON THE QUESTIONS OF ELECTRON ACCELERATORS, THE SCIENTIFIC COMMUNITY WILL QUESTION THE PRODUCTIVITY OF MAKING AVAILABLE ITS MOST HIGHLY QUALIFIED PERSONNEL TO PARTICIPATE IN OBJECTIVE REVIEW PROCESSES AND RECOMMEND THE BEST COURSE OF ACTION FOR THE FEDERAL GOVERNMENT. THE AMERICAN SCIENTIFIC COMMUNITY CERTAINLY UNDERSTANDS ITS INTERNATIONAL COMPETITION; WE IN CONGRESS SHOULD HEED THEIR TECHNICAL JUDGMENT.

FEBRUARY 9, THE DEPARTMENT OF ENERGY SUBMITTED TO THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES, AS WELL AS THE SENATE APPROPRIATIONS COMMITTEE, A PROPOSED REPROGRAMMING ACTION TO TRANSFER $2 MILLION OF FY 1984 OPERATING EXPENSES FROM BROADLY SCOPED ACCELERATOR RESEARCH DEVELOPMENT ACTIVITIES IN SUPPORT OF THE OVERALL NUCLEAR PHYSICS PROGRAM TO ACCELERATOR RESEARCH AND DEVELOPMENT ACTIVITIES IN MORE DIRECT SUPPORT OF CEBAF.

BOTH THE HOUSE SCIENCE AND TECHNOLOGY COMMITTEE, AS WELL AS THE HOUSE APPROPRIATIONS COMMITTEE, HAVE CLEARED THE REPROGRAMMING REQUEST. I ENCOURAGE MY COLLEAGUES ON THIS COMMITTEE, AS WELL AS THE SENATE ENERGY AND NATURAL RESOURCES COMMITTEE, TO DO LIKEWISE. I AM SUBMITTING FOR THE RECORD A COPY OF A MARCH 27, 1984 LETTER I RECEIVED FROM THE DEPARTMENT OF ENERGY CONCERNING THE IMPORTANCE OF THE REPROGRAMMING REQUEST.

MOST OF THE $2 MILLION WILL BE SPENT TO DEVELOP THE PROTOTYPE OF THOSE TECHNICAL COMPONENTS WHICH FORM A MAJOR ROLE IN THE ACCELERATOR DESIGN AND TO FUND A CORE STAFF. SPECIFIC ACTIVITIES IN FY 1984 WILL INCLUDE:

1) ACCELERATOR DESIGN STUDIES INTO THE TECHNOLOGY OF LINEAR ELECTRON ACCELERATORS, RECIRCULATION OF ELECTRON BEAMS THROUGH AN ELECTRON LINEAR ACCELERATOR FOR MULTIPLE PASSES OF ACCELERATION, PULSE STRETCHER STORAGE RINGS, ELECTRON BEAM TRANSPORT INSTRUMENTATION, AND PHYSICS RESEARCH INSTRUMENTATION;

2) PROTOTYPE DEVELOPMENT OF HIGH-POWERED RF EQUIPMENT, ACCELERATOR STRUCTURES, AND BEAM INJECTION AND EXTRACTION INSTRUMENTATION;

3) ADVANCED CONCEPTUAL DESIGN;

4) ADVANCED STUDIES OF EXPERIMENTAL EQUIPMENT NEEDED TO CARRY OUT A PROGRAM OF BASIC NUCLEAR RESEARCH WITH ELECTRON BEAMS.

THE DOE HAS STATED THAT, REGARDLESS OF THE FUTURE OF CEBAF, THE FY 1984 ACTIVITIES WOULD BE A WORTHWHILE CONTRIBUTION TO THE NUCLEAR PHYSICS PROGRAM AND THE NATION'S OVERALL ADVANCEMENT OF IMPORTANT AREAS OF ACCELERATOR TECHNOLOGY.

I WANT TO EMPHASIZE HOW CRITICAL THE RELEASE OF THESE FY 1984 FUNDS IS TO CEBAF. SURA DOES NOT HAVE THE EXISTING MANPOWER AND EQUIPMENT BASE OF THE NATIONAL LABORATORIES. THESE FUNDS ARE URGENTLY NEEDED TO ESTABLISH A MANPOWER BASE, PERFORM TECHNICAL ENGINEERING AND DESIGN, AND MAINTAIN THE PROJECT SCHEDULE. THE UNIVERSITIES AND THE COMMONWEALTH OF VIRGINIA CANNOT CONTINUE INDEFINITELY TO FINANCE THIS PROJECT AND MAINTAIN THE MOMENTUM NECESSARY TO MEET THE CONSTRUCTION SCHEDULE.

THE PRESIDENT'S FY 1985 BUDGET REQUEST TO THE CONGRESS INCLUDES $5 MILLION IN OPERATING EXPENSES FOR RESEARCH AND DEVELOPMENT IN SUPPORT OF THE CEBAF PROJECT. TO INITIATE THE CEBAF CONSTRUCTION EFFORT, $2 MILLION IN CONSTRUCTION FUNDS IS REQUESTED.

THE RESEARCH AND DEVELOPMENT WORK WILL INCLUDE:

1) DESIGN STUDIES ON CEBAF'S RECIRCULATED ELECTRON LINEAR ACCELERATOR AND PULSE STRETCHER RING;
2) PROTOTYPE DEVELOPMENT OF KLYSTRONS, MODULATORS, ACCELERATING STRUCTURES, TRANSMISSION GUIDELINES, PULSE STRETCHER RING STRUCTURES, INJECTION AND EXTRACTION SEPTA MAGNETS;
3) OPTIMIZATION STUDIES OF EXPERIMENTAL BUILDINGS AND TUNNELS TO HOUSE THE ACCELERATOR COMPLEX;
4) DESIGN STUDIES OF EXPERIMENTAL EQUIPMENT NEEDED TO CONDUCT A RESEARCH PROGRAM WITH CEBAF'S UNIQUE BEAMS;
5) DEVELOPMENT OF CEBAF'S TECHNICAL AND ADMINISTRATIVE TEAM.

CONSTRUCTION ACTIVITIES WILL INCLUDE ARCHITECT/ENGINEERING WORK, DETAILED DESIGN BEYOND THE CONCEPTUAL LEVEL, AND PRELIMINARY SITE WORK INCLUDING GEOTECHNIC STUDIES AND RENOVATION OF EXISTING BUILDINGS TO HOUSE CEBAF STAFF.

I URGE MY COLLEAGUES ON THIS COMMITTEE TO CONCUR WITH THE ADMINISTRATION'S SUPPORT OF CEBAF SO THIS IMPORTANT PROJECT CAN MOVE FORWARD.

I AM SUBMITTING FOR THIS HEARING RECORD A COPY OF ANSWERS FROM THE DEPARTMENT OF ENERGY TO QUESTIONS I RAISED ON CEBAF AT THE APRIL 7TH HEARING OF THE SENATE SUBCOMMITTEE ON ENERGY RESEARCH AND DEVELOPMENT.

LETTER FROM JAMES S. KANE, DEPUTY DIRECTOR, OFFICE OF ENERGY RESEARCH, DEPARTMENT OF ENERGY

March 27, 1984

Honorable John W. Warner
United States Senate
Washington, DC 20510

Dear Senator Warner:

This letter is in response to your inquiry concerning reprogramming of FY 1984 funds for the Continuous Electron Beam Accelerator Facility, (CEBAF). I have several observations related to this subject.

First, for all complex, high technology construction projects, such as CEBAF, it is essential that a considerable amount of preliminary work be done before the project is submitted to Congress. I believe that every facility constructed by Energy Research has had such pre-request research and development. The work usually involves conceptual design, plus specific research on topics that involve elements of technical uncertainty, yet are essential to the success of the project. The work is generic, rather than site specific, is done from operating funds, and is usually described in the budget. It provides needed information, but in no sense commits the government to construction.

It is the policy of the Department, and it is required by the OMB that we do this preliminary work. It is a sensible practice. It is impossible to define costs, performance and schedule in the absence of such effort. As examples, the Energy Research Office is doing preliminary research and development on two such projects currently: the Superconducting Super Collider and the Tokamak Fusion Core Experiment. Neither of these projects has been submitted to Congress for line item construction.

Second, I can recall at least one example of a construction project that was initiated by a reprogramming action prior to authorization and appropriation of funds by the Congress. The project is the High Temperature Materials Laboratory now under construction at the Oak Ridge National Laboratory. In FY 1983 the Appropriations Subcommittees on Interior agreed to reprogram $1.0M of funds for the initiation of construction activities prior to passage of the FY 1984 appropriations.

The atypical reprogramming request for CEBAF came about because SURA is a new organization, with no ongoing budget. For an existing organization, the preliminary funding is normally provided in the operating expense budget.

In conclusion, the use of operating funds to do limited preliminary work on as-yet unapproved construction projects is a reasonable practice that the Department has been following for years. I believe that its use for CEBAF is warranted, and critical to the success of the project. This is the justification for our reprogramming request.

Please let me know if I can be of further assistance.

Sincerely,

James S. Kane

James S. Kane
Deputy Director
Office of Energy Research

QUESTIONS SUBMITTED BY SENATOR WARNER

Nuclear Physics

(1) Question: Can you describe to the committee in layman's terms the purpose of the Continuous Beam Electron Accelerator Facility (CEBAF) and why the Administration believes it is worthy of Federal support?

Answer: High energy and nuclear physics research tells us that the protons, neutrons, and mesons which make up atomic nuclei are themselves composed of even smaller entities called quarks and gluons. Quarks and gluons are believed to interact according to the laws of Quantum Chromodynamics (QCD). It has therefore become very important in nuclear physics research to understand the extent to which: (1) quarks and gluons influence the structure and interactions of nuclei; (2) QCD is an exact, quantitative theory of the strong nuclear force; and (3) the behavior of quarks changes when the quarks are surrounded by nuclear matter--for example, are new states of nuclear matter created. The Continuous Electron Beam Accelerator Facility (CEBAF), with its continuous beam and its capability of providing electron probes at any energy in the range from 0.5 to 4.0 billion electron volts offers the opportunity to study these questions with an unprecedented degree of precision.

The Administration gives high priority to supporting such forefront basic research activities as nuclear physics at a level which maintains their vitality and world-competitiveness. Federal support of basic nuclear research is this Nation's long term investment in its technological future with nuclear processes--trained manpower, knowledge base, and advanced instrumentation. The research community has determined that the highest priority for new accelerator construction in the United States nuclear physics program is for an electron accelerator with the properties proposed for the Continuous Electron Beam Accelerator Facility.

(2) Question: What are the unique characteristics of the beams which can be provided by CEBAF compared to those of existing accelerators? Why are these characteristics important? What is new about the physics which will be studied at CEBAF?

Answer: The most unique characteristic of the Continuous Electron Beam Accelerator Facility (CEBAF) will be its ability to deliver continuous beam over the energy range 0.5 to 4.0 billion electron volts. Existing electron accelerators, such as the linear accelerator at the Stanford Linear Accelerator Center, have sufficient beam energy but have beam only in the form of very sharp pulses. Some few electron accelerators have continuous beam but much too low beam energy to investigate the ways in which the quarks bound in the neutrons and protons inside nuclei determine the makeup and behavior of nuclei.

Continuous beam is essential to those experiments which require precise timing to identify the results of a collision of an electron with a nucleus. If the incoming electron beam only comes as very sharp pulses, then all collisions take place at essentially the same time. Under such circumstances, our detectors are not able to sort out which fragments came from which collisions. With a continuous beam, our detectors can measure the time spacing of fragments and thereby sort out which fragments came from which collisions. Thus, continuous beam capability greatly increases the information gained from the collisions of electrons with nuclei by allowing us to completely determine the results of a collision--for example, which fragments were knocked out, what were their momenta and energies, what nucleus was left behind, what was its energy, and how much energy and momentum did the electron lose in the collision. With pulsed beams, one or only a few of the above items can be determined.

At energies above the CEBAF maximum energy, experiments are, to a good approximation, only sensitive to effects of electrons scattering from individual quarks within the nuclei. Under these circumstances, nuclei can be described as a loose collection of free quarks. At energies below 1 GeV, electron scattering from nuclei can accurately be described as electrons scattering from the protons, neutrons, and mesons known to be in nuclei. Thus, the 0.5 to 4 billion electron volt capability of CEBAF permits quantitative examination of the transition between two diverse, but likely complementary, descriptions of nuclei.

(3) Question: What is the anticipated life of CEBAF and can you confirm that it is a single purpose machine?

Answer: Because accelerator facilities are continuously upgraded to meet evolving scientific challenges, their useful life is basically determined by their ability to respond to these evolving challenges. The technical design concept for the Continuous Electron Beam Accelerator Facility's (CEBAF) accelerator and experimental facilities is sound and flexible. In its examination of competing accelerator designs, the DOE/NSF Nuclear Science Advisory Committee specifically cited this capability for future expansion as an asset of the CEBAF proposal. Thus, we expect CEBAF to have a long and productive life. Based upon our experience with basic nuclear research facilities, we expect CEBAF to have a useful life of at least 20 to 25 years.

We are building CEBAF as a single-purpose facility dedicated to basic nuclear research. Because the CEBAF design is flexible, it is entirely possible that other scientific opportunities will arise at some future date. As such opportunities arise, the Department will consider their merits and desirability for inclusion in the CEBAF program.

(4) Question: How many accelerators are there in the world which can perform the research which will be done at CEBAF? Would it be cheaper and/or more feasible to modify existing accelerators to perform this work?

Answer: No accelerators exist anywhere in the world that can perform the research which will be done at CEBAF.

The only accelerator which one might consider modifying to perform this work is the linear accelerator at the Stanford Linear Accelerator Center (SLAC). However, this would require disruption of a major effort in the High Energy Physics program and would interrupt construction of the SLAC Linear Collider (SLC). There is also considerable difficulty in finding space for the required pulse stretcher ring and new experimental area without redesign of SLC and/or termination of the Stanford Synchrotron Radiation Laboratory (SSRL), Stanford Positron Electron Accelerator Ring (SPEAR), and Positron Electron Project (PEP) research efforts. Location of the CEBAF project at SLAC is not a reasonable option.

(5) Question: Do we expect competition from other countries in this area, e.g., in Europe or Japan?

Answer: The interesting physics to be done with a high energy, continuous beam electron accelerator has attracted worldwide scientific interest. The Japanese are beginning to discuss the construction of a facility very similar to CEBAF at Tohoku University. The Germans are adding a pulse stretcher ring to an electron accelerator at the University of Bonn. Because of its low beam current, this facility will compete only with CEBAF in the area of tagged photon physics. The CEBAF project is an opportunity for the United States to take a commanding position in an important area of basic physics research.

(6) Question: How important is CEBAF for the future of nuclear physics in the U.S.? Doesn't the unique relationship of the 25 SURA-member universities also make this vital to the training and education of nuclear physicists and to the regaining of U.S. leadership in this field?

Answer: Over the past decade, increasingly sophisticated experimental studies of nuclear properties have shown that the picture of nuclei as a simple collection of nucleons (neutrons and protons) is incomplete. In particular, a more complete nuclear theory must include effects due to excited states of nucleons and definitely the quark substructure of neutrons and protons. Considerable progress is now being made in improving the understanding of nuclei at a more fundamental level. These new insights on nuclear properties suggest a new generation of experiments that will be necessary in order to proceed further. The Continuous Electron Beam Accelerator Facility (CEBAF) facility with its continuous, intense, high energy electron beams will be uniquely positioned to address these new experimental areas and keep the United States in the forefront of a very important and vital area of nuclear physics.

The relationship between CEBAF and the 25 Southeastern Universities Research Association (SURA) member universities will provide a unique opportunity to effectively involve student and faculty members from these institutions in an exciting new area that is truly at the cutting edge of nuclear physics research in the world. The attractiveness of this program should result in an increase in students trained in nuclear physics, attraction of the best and brightest students, and better preparation for their future careers.

(7) Question: What are some of the practical results which have been obtained from other accelerators?

Answer: The variety of practical applications of accelerator beams is kaleidoscopic. They range from the seemingly mundane use of electron beams for sludge disinfection and cellulose degradation to the basic research ideas of inertial fusion and nuclear waste transmutation. Furthermore, the economic consequences of the industries that the accelerators are serving are substantial. The food processing, polymerization, and solid state ion implementation are all multibillion dollar industries at the finished product level.

In medicine and industry, extensive use is made of accelerators. For example, about 1,000 accelerators are now installed in hospitals in the United States. One person in eight at some time in his life will be placed under one of these machines for treatment of cancer. Most of the surgical sutures and disposable medical apparatus in use has been sterilized by exposure to radiation, usually using beams from particle accelerators. In industry, the use of radiation processed materials is widespread and is growing rapidly. A particular example is that of applying insulating coating on wire, where radiation processing allows a better product, costing less and using less volume. Such radiation-processed wire is used, for example, exclusively in the 747 aircraft. Its use is growing rapidly in other applications such as telephone central offices.

One of the most rapidly growing applications of accelerators in industry is the production of integrated circuits. Integrated circuits go through at least one step of ion implantation during their manufacture. Some go through four to six steps. Electron-beam lithography systems can be used to write the circuit patterns on masks, and synchrotron radiation x-rays from electron storage rings can be used to print these circuit patterns on semiconductor wafers. Electron beams can also be used to anneal rapidly the radiation damage that occurs during the ion-implantation process. About 1,000 ion-implantation accelerators are now in use in industry.

In the metallurgical field, ion implantation is being used presently in the research and development phase to reduce friction and to improve wear properties of materials, for hardening, to improve fatigue resistance, corrosion resistance, adhesion of material and for catalysis, and to make superconducting materials. The first two applications cited above could enhance significantly the life of automobile parts and potentially lead to an increase in the fuel economy in current automobiles.

Low current electron, ion, and electromagnetic radiation beams are used for a variety of diagnostics. These range from accelerator dating and electron radiography, resonance neutron radiography, flash x-ray radiography, and to semiconductor analysis and microprobe beams to detect oil and other fuels in underground wells.

In summary, the practical use of accelerators is widespread and has great economic consequences. While the purpose of the CEBAF project is basic research in nuclear physics, it is not inconceivable that the particular accelerator research and development needed to build and operate CEBAF would lead to improvements or new developments in accelerator technology that have practical applications outside of nuclear physics research.

(8) Question: Concern has been expressed by the scientific community that some nuclear physics projects have not been exposed to intensive peer review prior to Congressional consideration. What is the opinion of the nuclear science community about the CEBAF project? Has it been subjected to peer review?

Answer: Peer review of the Continuous Electron Beam Accelerator Facility (CEBAF) project has been extensive and thorough. Through formal studies and public meetings over a five year period, the basic nuclear research community reviewed the scientific need for a high energy, continuous beam electron accelerator facility and concluded that establishment of such a facility is the next logical step for advancement of basic nuclear research in the United States. The DOE/NSF Nuclear Science Advisory Committee's 1979 Long Range Plan for Nuclear Science highlighted the scientific opportunities.

By January 1983, five institutions responded to this identified need and the 1979 Long Range Plan's projection of FY 1985 start of construction by submission of unsolicited proposals; the proposals differed significantly in accelerator concept and other technical parameters. The five institutions were Argonne National Laboratory, University of Illinois at Urbana, Massachusetts Institute of Technology, National Bureau of Standards, and Southeastern Universities Research Association.

The DOE/NSF Nuclear Science Advisory Committee (NSAC) established an ad hoc "Panel on Electron Accelerator Facilities" to recommend the facility or combination of facilities which will best meet the United States needs for basic nuclear research with electromagnetic probes. The Panel, chaired by Professor D. Allan Bromley of Yale University, asked each proposer to provide written critiques of all competing proposals and then respond in public to the written critiques of others. After an intensive series of site visits and public meetings, the Panel reached the following principal recommendation:

> "That the proposal submitted by the Southeastern Universities Research Association (SURA) be accepted and funded for the construction of a new National Electron Accelerator Laboratory (NEAL) centering on a 4 GeV linear accelerator-stretcher ring system capable of delivering intense, high duty factor, electron beams in the energy range from 500 to 4000 MeV."

In April 1983, the parent committee (NSAC) fully endorsed the Panel Report and recommended that it be implemented without delay.

(9) Question: I understand that the Department of Energy/National Science Foundation's Nuclear Science Advisory Committee has prepared a long range plan for nuclear science. Is the CEBAF project included in this long range plan?

Answer: The Continuous Electron Beam Accelerator Facility (CEBAF) and the science to be done with this facility are highlighted in the DOE/NSF Nuclear Science Advisory Committee's (NSAC) "Long Range Plan For Nuclear Science" (December 1983). In the Long Range Plan, NSAC reaffirmed its April 1983 recommendation for the earliest possible start on the construction of CEBAF. The 1983 Long Range Plan specifically calls for start of CEBAF construction in FY 1985.

(10) Question: The Department has sent a $2 million reprogramming request to the Congress which would provide direct support of CEBAF instead of more broadly based accelerator research and development activities. Why is this a good idea? How will the money be used?

Answer: The Continuous Electron Beam Accelerator Facility (CEBAF) is the next logical step for advancement of basic nuclear research in the United States. Thus, research and development (R&D) in support of this project is the Nuclear Physics program's highest priority use of FY 1984 accelerator R&D funds.

The $2.0 million in FY 1984 would be used to develop the technical and manpower base of CEBAF, to conduct detailed design studies of accelerator and beam transport components, and to carry out prototype work on radiofrequency power systems.

(11) Question: Is it unprecedented for the Department of Energy to make Federal research and development funds available for such projects prior to the project receiving Congressional approval through the budget, authorization, or appropriations process? For what specific activities will the funds be used in FY 1984?

Answer: In order that the Department of Energy have an adequate information base for decisions on complex construction projects, research and development (R&D) must be conducted prior to Congressional approval. Such R&D provides the needed information but does not constitute a commitment to proceed with construction. Thus, provision of R&D funds prior to Congressional approval is not at all unprecedented and has proven necessary for most major projects. We are convinced that R&D prior to Congressional approval is essential to proper formulation of the Department's Budget Request to Congress and to prudent management of the Department's construction projects.

Specific FY 1984 activities in support of the Continuous Electron Beam Accelerator Facility (CEBAF) would include: (1) development of CEBAF's scientific and administrative staff; (2) design and optimization studies on the recirculated linear accelerator and pulse stretcher ring which are the technical heart of the CEBAF accelerator; and (3) prototype of key items of equipment such as the radiofrequency systems which will drive the linear accelerator, the resonant cavities which will accelerate the electron beam, the injection and extraction systems for the pulse stretcher storage ring which will smooth the linear accelerator's pulse into a continuous beam, and the bending and focusing magnets which will transport CEBAF's electron beam through the accelerator complex and into experimental research areas.

(12) Question: Does the expenditure of these FY 1984 funds in the amount of $2 million represent an irreversible commitment to the project? Is there any justification or importance that this work be undertaken even if the CEBAF project does not go forward as planned?

Answer: FY 1984 expenditure of $2.0 million for research and development (R&D) in support of the Continuous Electron Beam Accelerator Facility (CEBAF) project does not represent an irreversible commitment to proceed with construction of CEBAF. The FY 1984 activities will provide a valuable information base for the CEBAF project and will permit urgently needed development of CEBAF's technical and administrative infrastructure. None of the FY 1984 activities will alter the proposed site at Newport News, Virginia or result in installation of permanent equipment.

Significant portions of the R&D work planned for FY 1984 are of interest and importance to a broad community of American scientists working to advance accelerator technology for basic research, biomedical, industrial, and defense applications. Specific examples of such general interest include R&D on high power radiofrequency systems and systems for acceleration and transport of high quality, high intensity electron beams. Thus, the planned CEBAF R&D would be valuable even if the CEBAF project did not go forward.

(13) Question: What are the implications for CEBAF if Congress does not give its consent to the FY 1984 reprogramming request?

Answer: The planned research and development (R&D) activities in FY 1984 are essential to orderly building of the Continuous Electron Beam Accelerator Facility's (CEBAF) technical information base, technical and scientific staff, and administrative infrastructure. These people and design data are critical to the CEBAF project. Our ability to determine a reliable project schedule and cost estimate for CEBAF on a schedule compatible with the FY 1986 budget process is based on the use of funds specified in our reprogramming notice for the CEBAF. If funds are not available for this purpose in FY 1984, it will cost a full years delay in the project with an associated increase for the total estimated project cost.

(14) Question: What is the Administration's FY 1985 budget request for CEBAF and how will this be used?

Answer: The FY 1985 Budget Request is $5,000,000 in Operating Expenses to continue and extend research and development (R&D) activities in support of the Continuous Electron Beam Accelerator Facility (CEBAF) construction project and $2,000,000 in Construction funds to initiate the construction project itself. The R&D work will include:

(1) design studies on CEBAF's recirculated electron linear accelerator and pulse stretcher ring;

(2) prototype development of klystrons, modulators, accelerating structures, transmission waveguides, pulse stretcher ring structures, injection and extraction septa for the pulse stretcher ring, and beam switchyard magnets;

(3) optimization studies of experimental buildings and tunnels to house the accelerator complex;

(4) design studies of experimental equipment needed to conduct a research program with CEBAF's unique beams; and

(5) development of CEBAF's technical and administrative team.

Construction activities will include architect/engineering work, detailed design beyond the conceptual level, and preliminary site work including geotechnic studies and renovation of existing buildings to house CEBAF staff.

(15) Question: My understanding of the significance of the FY '85 Administration budget request is that it represents an Administration commitment to CEBAF, subject, of course, to Congressional approval. Is that correct?

Answer: The Department's FY 1985 Budget Request asks authorization and appropriation of funds to initiate construction of the Continuous Electron Beam Accelerator Facility (CEBAF) project. In this sense, the Budget Request does represent a commitment to CEBAF. We are convinced that CEBAF's scientific justification is strong and that its technical feasibility is established.

(16) Question: Could you submit for the record DOE's preliminary operating budget for CEBAF and how this compares with other accelerators?

Upon completion we expect the Continuous Electron Beam Accelerator Facility (CEBAF) to require an annual operating budget of approximately $15 million in FY 1984 dollars for facility operations. Facility operations includes all costs of operation and maintenance of the accelerator complex, permanently installed equipment, and the physical plant--that is, all costs of delivering beam for use by research scientists. In addition, an annual budget of about $5 million will be required for research by CEBAF staff and for plant and instrumentation improvements.

For comparison, the three largest accelerator facilities in the Nuclear Physics program have FY 1984 facility operations budgets of $33.5 million for the Clinton P. Anderson Meson Physics Facility, $17.3 million for the Bevalac, and $5.4 million for the Bates Linear Accelerator Center.

(17) Question: When is CEBAF construction scheduled for completion subject, of course, to Congressional authorization and appropriations?

Answer: Detailed review of the project schedule and cost estimate for the Continuous Electron Beam Accelerator Facility (CEBAF) is in progress. However, we expect that construction will take about five years. Under optimized circumstances which include prompt Congressional approval of the FY 1984 reprogramming request, the first nuclear physics experiment could begin in 1990.

STATEMENT OF HON. PAUL S. TRIBLE, JR., U.S. SENATOR FROM VIRGINIA

Senator TRIBLE. Mr. Chairman, I am very pleased to be here. I ask that my full statement be made a part of the record.

Chairman HATFIELD. It will be.

Senator TRIBLE. I would simply ask, Mr. Chairman, that this subcommittee recognizes the importance of maintaining America's leadership in basic scientific research. Mr. George Keyworth, Science Advisor to the President, recently observed:

> The United States now faces serious challenges to its economic well-being and economic security. The preeminence of our scientific and technological enterprises is essential to counter these challenges.

This electronic beam accelerator facility will be one of a kind in the world. Not only will the accelerator provide a basic research tool to investigate the dense interior of the center of the atom, but it will also provide a training ground for an entire new generation of scientists and researchers.

We cannot overemphasize the significance of this project to our Nation and the free world. Mr. Chairman, we are here today to join with this distinguished panel in urging this subcommittee to approve the administration's request and we thank you for the opportunity to do so.

[The statement follows:]

STATEMENT OF SENATOR PAUL S. TRIBLE, JR.

Mr. Chairman, I appreciate this opportunity to appear on behalf of the Southeastern University Research Associates' (SURA) continuous electron beam accelerator facility, or CEBAF. I'm also pleased to join Dr. James McCarthy of the University of Virginia and Dr. Harry Holmgren, president of SURA. They will provide you with a detailed description of SURA and SURA's exciting projects.

SURA is a consortium of 29 colleges and universities formed for the purpose of managing large, cooperative projects in science, engineering, and medicine. The member universities are located in Virginia, Maryland, the District of Columbia, North Carolina, South Carolina, Alabama, Georgia, Louisiana, Florida, and Tennessee.

As early as 1977, the scientific community expressed interest in a high-energy, continuous electron beam able to achieve an electron energy of about 4 billion electron volts (4GeV). Since that time, development of this type of accelerator has become a top priority for the national physics community.

SURA, under the leadership of Dr. McCarthy, began to examine the possibility of developing a continuous beam accelerator and eventually developed the proposal which was submitted to the Department of Energy/National Science Foundation Nuclear Science Advisory Committee. The SURA proposal was judged the best of the four submitted to NSAC in 1983. The SURA proposal was selected because of the excellence of its design, SURA's commitment of academic resources to the project, and strong support from the State government.

This government recognizes the importance of maintaining American leadership in basic scientific research. George Keyworth, Science Advisor to the President, observed in a letter to various members and Senators last June: "The United States now faces serious challenges to its economic well-being and economic security. The preeminence of our scientific and technological enterprises is essential to counter these challenges."

The CEBAF facility will be unique. Not only will the accelerator provide a basic research tool to investigate the dense interior of the center of the atom, it will provide the training ground for an entire new generation of young scientists and researchers.

I cannot overemphasize the significance of this project. Nuclear energy serves as the basis for our strategic defense, for advances in medicine, for generation of electricity with nuclear reactors, and for many industrial purposes.

Mr. Chairman, for these reasons its critical that CEBAF be permitted to continue its research and development and begin construction of the accelerator in a timely fashion. The cost is small in comparison with the potential benefits. I urge your subcommittee to approve the administration's request for $5 million in operating expenses and research and development activities and $2 million in construction moneys.

PROJECT SUPPORT

Senator **Warner**. Mr. Chairman, I would also like to note that the Governor of Virginia and his administration have been full partners, working with the bipartisan Virginia congressional delegation to make this possible. Our colleagues, Mr. Bateman and Mr. Whitehurst, have led the SURA effort in the House and the House has most recently included this project in their science and technology authorization bill.

BUDGETARY CONSIDERATIONS

Chairman **Hatfield**. I would say to my colleagues that we are facing a dilemma today. This project becomes entangled in budgetary considerations, and one package at least that might be adopted which freezes all discretionary program funding. As you know, this is about a $225 million project with an annual operating requirement of $20 to $40 million. There are presently about 11 existing accelerators in the country—accelerators with $75 million in the budget for operations which allows only 54 percent utilization of the current accelrators.

If we move ahead with the freezing of those nondefense programs, this might become a victim of that, not in terms of the merits of the arguments that you exhibited, but in terms of the financial crunch. I wanted to lay that out.

Senator **Warner**. Mr. Chairman, we recognize that—you have been very thoughtful to discuss this with us informally. Indeed, members of your staff have acquainted our staffs with this responsibility of your committee.

I would hasten to point out while this does not precisely fall in the category of defense authorization and expenditures, I could make a very strong case, Mr. Chairman, that this very important piece of technology would be a major contributor to our long-term national defense. As you know, it is the research and development which gives us primarily the edge over our Soviet Union threat.

Chairman **Hatfield**. I believe you are the subcommittee chairman of the Armed Services Committee that authorizes the DOE weapons budget.

Senator **Warner**. Yes, that is correct, Mr. Chairman.

Chairman **Hatfield**. Well, again we have some degree of flexibility—maybe we can deduct some of the dollars for those nuclear weapons in this budget so we can do these projects.

Senator **Warner**. Mr. Chairman, I will find the money.

Chairman **Hatfield**. And then find some money for this.

Senator WARNER. I will find the money.

Senator TRIBLE. Mr. Chairman, a multimillion-dollar budget request is obtainable, I trust, and we ask you for your thoughtful consideration.

Chairman HATFIELD. Do your constituents wish to comment at this time?

STATEMENT OF HARRY D. HOLMGREN, PRESIDENT, SOUTHEASTERN UNIVERSITIES RESEARCH ASSOCIATION

Mr. HOLMGREN. Yes, Mr. Chairman.

I am here as the president of the Southeastern Universities Research Association (SURA). I would like to explain that actually I represent another State; I am a faculty member of the University of Maryland. I would like to stress that the SURA organization has expanded into 10 States. We go all the way down to Florida and Louisiana. Our most recent addition is Kentucky, and Tennessee is in the process of being elected to membership.

Chairman HATFIELD. It does cover Louisiana?

Mr. HOLMGREN. It does include Louisiana, yes. Louisiana State is one of our strong institutions in terms of the use of this particular facility.

Chairman HATFIELD. Have you talked to Senator Johnston who is on this subcommittee?

Mr. HOLMGREN. I am sure that the members of Louisiana State have.

The point that we are here to make is that we want to support the administration's request for the $7 million as Senator Warner has emphasized here. We feel that this is essential in order to get this very important project started. This project has been something which has been in the minds of scientists for approximately two decades now. Dr. McCarthy will summarize some of the thinking in research and development that is going on to try to develop a machine of the type that we have proposed to build.

I would like to emphasize also that the members of the SURA institution and its faculty members have been some of the leaders in this field in using high-energy electron beam nuclei. James McCarthy has been one of the foremost leaders in the country; he is not only a leader in the physics but a leader in the development of the ideas for the accelerator. He is the person who has spearheaded our project and I think it would be best if I reserved most of the time for him.

Chairman HATFIELD. Before Dr. McCarthy proceeds, those buzzers are indications of activity going on on the floor. Let me excuse my colleagues at this point, Dr. McCarthy, and we will treat you very well even when they are gone. I think Senator Warner and Senator Trible do have other matters that they ought to be about. So if that is all right, I will excuse my colleagues at this point to attend to other matters. As I say, we will take care of your constituents.

Senator WARNER. Mr. Chairman, before closing I will make the point of consulting with you with respect to the possibility of finding these funds in the Department of Energy budget over which I have jurisdiction as chairman of the Subcommittee on Strategic and Theater Nuclear Forces. As you know, that is in the area of $7 to $8 billion.

Chairman HATFIELD. I think there is money there really, of $7 to $8 billion that we ought to be able to find $2 million. Maybe nerve gas, the 155 shell,or some of those things like that could be eliminated.

Senator WARNER. Mr. Chairman, you are mixing apples and oranges. The $7 billion budget for the DOE does not contain chemical warfare funds.

Chairman HATFIELD. Thank you, Senator.

Senator WARNER. Thank you.

Chairman HATFIELD. Very happy to hear from you, Senator Trible.

Senator TRIBLE. Thank you, Mr. Chairman.

Chairman HATFIELD. Dr. McCarthy.

STATEMENT OF JAMES S. McCARTHY, ACTING DIRECTOR, CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY

Mr. McCARTHY. Thank you, Mr. Chairman. I will try to be brief and tell you what is important and really crucial need for the advance of nuclear science in this country and how it relates to this project.

I am professor of physics at the University of Virginia and the acting director of the Continuous Electron Beam Accelerator Facility. I am here to discuss the facility and its importance to the future of nuclear physics. An accelerator with these capabilities has long been a goal of the nuclear science community. This facility has the No. 1 priority for construction and it has recently issued this plan in December 1983.

The accelerator is a basic research tool and, as with all basic research, requires technical innovation, it requires imagination, it requires a dedication to make it acceptable. The long-range goals in benefits of a facility like this go beyond the initial considerations that institute the project.

Let me state that nuclear physics is on the threshold of new discoveries. This accelerator has tried to branch into a fundamental description of the nucleus based upon what our colleagues and I in particle physics have demonstrated. It is one of the most precise instruments we can have for this investigation so it really allows a flexibility and a rather excitment for nuclear science in the sense that it will maintain leadership not only in this country but the world.

This project represents the results of over two decades of intense research in nuclear science to be developed in the next generation, so this was initiated in the 1960's at Stanford University with work on the superconducting accelerator project. The last 6 years have seen active research programs at universities and national laboratories to define an accelerator to achieve the required accelerator parameters.

The results of these efforts were submitted as five very strong proposals for a peer review to a panel of the Subcommittee of Nuclear Science. It must be emphasized that this faculty represents the culmination of the almost 20 years of work on research and development. I believe the nuclear science community has been quite conservative in its approach to this accelerator, it has waited until the accelerator design was achieved that incorporated existing technology that assured its success and was extensively based upon past experience of the reactor.

I think one of the reasons this accelerator was chosen was there are no aspects that could lead to failure or significant cost increases. That was a major decision related to the peer review matter.

The universities in States with SURA have contributed approximately $1.5 million to this project to this date. This project from its inception to its final acceptance was funded almost entirely from private resources and it is still being funded from private resources. I know of no accelerator of this magnitude which was instigated with this type of funding and I think that shows the commitment of the universities and the States to this project.

If it is built, there will be no other accelerator in the world with the technical capability.

I wish to conclude by emphasizing the importance of requested funds for the future of nuclear science in this country. These funds can assure the timely construction of one of the most advanced research facilities in the world and a subsequent leadership role in nuclear science. This project will be very important in increasing basic knowledge, that is a major reason for construction, but it also involves an increase in science and education in the region of the country. Technical development naturally follows through all of these, they have significant impact on the strength of our Nation.

Thank you, Mr. Chairman.

Chairman HATFIELD. Thank you very much, Dr. McCarthy. We appreciate your presence here.

Thank you, Mr. Holmgren.

I have already indicated that we have some problem with this proposal. It is not so much the matter of support for research, because we have a pretty good record of that. At the moment, we are looking at dollars and cents in the overall budget, and specifically the requirements associated with this accelerator.

We thank you very much for your testimony.

Dr. MCCARTHY. Thank you again.

[The statements follow:]

STATEMENT OF HARRY D. HOLMGREN, PRESIDENT, SOUTHEASTERN UNIVERSITIES RESEARCH ASSOCIATION

I am here as the President of the Southeastern Universities Research Association (SURA) to discuss our plans for the Continuous Electron Beam Accelerator Facility (CEBAF). I am accompanied by Dr. James McCarthy of the University of Virginia, the originator of the SURA proposal and Acting Director of CEBAF, who will tell you about the exciting science and facility plans. We are here specifically to support the Department of Energy Budget Request for FY 1985 which includes $2 million to initiate construction of CEBAF and $5 million for research and development in support of the project (Project Number 85-R-203).

First, I will tell you briefly about the SURA organization and summarize our progress to date. SURA is a consortium of 28 universities located in the nine southeastern states, registered in Virginia as a non-profit corporation. The structure of the organization is patterned on the Universities Research Association which manages the Fermi National Accelerator Laboratory. The basic infrastructure of the organization is in place and we are prepared to enter into an initial R&D contract with DOE in the immediate future.

Although the SURA organization has been in existence for less than four years, Dr. McCarthy and faculty members at other SURA institutions have played a major role for more than a decade in providing the scientific justification that led the U.S. nuclear science community to recommend a 4 GeV electron accelerator. The groups at the American University and the University of Virginia carried out many of the early experiments at the Stanford Linear Accelerator Center using high energy electron beams to study the properties of atomic nuclei. Faculty members at other SURA institutions carried out many of the early theoretical analyses of these experimental results, which demonstrated that the constituent neutrons and protons of nuclei had to be considered themselves as composite particles made of quarks. The groups at American University and the University of Virginia also spearheaded the effort to install the new injector at SLAC for nuclear physics studies.

Dr. McCarthy organized a conference of the leading international accelerator experts at the University of Virginia in 1979. The results of that conference indicated that a 4 GeV continuous beam electron accelerator could be built using existing technology. SURA submitted an initial proposal for a 2 GeV electron accelerator, with plans for upgrading to 4 GeV, to the DOE and NSF in 1980, two years before similar proposals were submitted by competing groups. Representatives of SURA member institutions have played an important part in planning the new facilities and helping set the national priorities in this exciting new frontier of physics at the interface between nuclear and particle physics.

By January 1983 the DOE and the NSF had received proposals for major electron accelerators from Argonne National Laboratory, Massachusetts Institute of Technology, National Bureau of Standards, Southeastern Universities Research Association, and the University of Illinois. A panel, chaired by Professor D. Allan Bromley of Yale, was appointed by the DOE and the NSF and charged with recommending "the facility or combination of facilities which best meet the United States' needs for basic nuclear research with electromagnetic probes." The Bromley Panel report, recommending the SURA proposal, was accepted by the Nuclear Science Advisory Committee in April 1983 and forwarded to the DOE and NSF: "with its full endorsement, and recommends that it be implemented without delay." In December 1983 NSAC reaffirmed this recommendation in their Long Range Plan for Nuclear Science.

Since the Bromley Panel report, we have used university and Commonwealth of Virginia funds to continue to refine the design and the cost estimates for both the accelerator and conventional construction. We have made extensive use of outside consultants from SLAC and elsewhere. We contracted with an A&E firm to develop more detailed designs and cost estimates for the conventional construction. We have employed the services of the Brobeck Corporation to reestimate and update the cost of the accelerator and related systems. A draft Conceptual Design Report for CEBAF was reviewed by the DOE in late February.

We expect to complete the final Conceptual Design Report and establish a Total Estimate Cost for CEBAF in June 1984.

Following the recommendation of the Bromley Panel report, SURA reconsidered its original site at Newport News. A Site Committee, consisting of four SURA Board members and three scientists from outside SURA, including one former Bromley Panel member, reviewed sites at Charlottesville and Blacksburg in addition to the one at Newport News. The Committee reaffirmed SURA's earlier selection of Newport News: the two buildings at Virginia Associated Research Campus (VARC) and the former Space Radiation Effects Laboratory (SREL) represent a substantial savings to the projects. The site is serviced by three airports: the Patrick Henry Airport, within three miles of the site, provides convenient commuter service to many East Coast cities; a major airport at Norfolk, less than 30 minutes drive by interstate, provides direct flights to cities throughout the United States; and the Richmond airport, approximately one hour by interstates, provides alternate connections. The VARC building provides approximately 23,000 square feet of office and laboratory space, in addition to shop space and will allow an immediate buildup of the staff. The SREL building, when renovated, will provide an additional 13,000 square feet of office and laboratory space in addition to 40,000 square feet for shops and service facilities.

The buildup of the CEBAF staff has had to await the availability of R&D funds from the DOE. The search for a director is nearing completion. Our objective is to have a permanent director in place by July 1984. Approximately 140 applicants have been received for various positions at CEBAF. A major emphasis will be placed on the recruitment of these persons over the next few months.

Funds for five Governor's Distinguished CEBAF Professorships, four other senior positions, and eleven junior personnel were appropriated by the Virginia legislature and will be available July 1, 1984. Other support provided by the Commonwealth brings their total contribution to more than $1.5 million per year for the next two years. The support for the nine senior positions and 17 additional state positions is expected to continue for the life of the project.

SURA institutions have ben actively recruiting new faculty members with expertise in the use of high energy electromagnetic probes. Existing faculty have taken sabbaticals at SLAC to gain experience. New programs in the field are developing at various member institutions.

SURA, in consultation with the DOE and NSF, appointed a National Advisory Board (NAB). The membership includes ten distinguished nuclear and particle physicists, representing major universities and laboratories in both the U.S. and Europe. The NAB advises the laboratory and SURA management on decisions affecting the structure and future of CEBAF. The NAB has held two meetings. The organization of a formal Program Advisory Committee (PAC) is expected to occur near the end of 1984 in order to help plan the initial experiments.

SURA has held a series of workshops involving approximately 100 scientists to plan the initial experimental facilities. An intensive one-week workshop is planned in June 1984. The formal User's Organization is being set up and is expected to be incorporated this summer.

To date, all research and development costs for CEBAF as well as architecture and engineering studies have been funded by the member universities and their respective states, with the Commonwealth of Virginia being the major contributor. The total contribution is approaching $1.5 million. This is a unique occurrence in the history of large accelerator projects.

STATEMENT OF JAMES S. MCCARTHY, ACTING DIRECTOR, CONTINUOUS ELECTRON BEAM ACCELERATOR FACILITY

I am Professor of Physics at the University of Virginia and I am also the Acting Director of the Continuous Electron Beam Accelerator Facility. I am here to discuss the facility and its importance to the future of nuclear physics. An accelerator with these capabilities has long been a goal of the nuclear science community. CEBAF has the enthusiastic support of nuclear physicists and has been given the highest priority for construction in the recent Long Range Plan for Nuclear Science, a report by the DOE/NSF Nuclear Science Advisory Committee, issued in December 1983. I wish to emphasize the importance of the DOE Budget Request of $2 million for construction and $5 million for R&D in FY 1985.

First, let me outline the importance of the science. The nucleus and the fundamental processes that take place within this dense and small region of space are important aspects of our universe. The primary mass of the universe is concentrated in nuclei, and the energy of the universe has its origin in nuclear and gravitational forces. Given our present state knowledge we are able to convert only a very small fraction of the total energy locked in the nucleus into usable energy: even when fusion reactors become practical, the fraction will increase only slightly. At the present time, we simply do not know if we will ever be able to find the means of extracting significantly more of the total energy contained in atomic nuclei.

CEBAF will be dedicated to basic research studying the constituents of the atomic nucleus and the forces by which they interact. Even though the accelerator itself will be an extremely large and complex device, it will be a precision instrument. The electron when used to probe the nuclear interior has significant advantages over other types of probes. Of primary important is that the electron interacts with the nuclear constituents only through the well-known electromagnetic force which permits us to obtain a precise and quantitative understanding of nuclear structure, the nuclear constitutents and force. By increasing the electron energy one is able to investigate increasingly smaller distances in space. That is why the maximum energy of the accelerator plays such an important role in determining the planned experimental program.

Nuclear Physics is on the threshold of new developments which promise to change completely our picture of the nucleus and the theoretical tools which we use to describe the structure of nuclear matter. Our colleagues in particle physics have demonstrated that protons and neutrons are made up of quarks and gluons and have shown that the Quantum Chromodynamics (QCD) provides a fundamental theory for describing the strong interactions. We must now consider that the neutrons and protons are composite particles and use the theoretical framework of QCD if we hope to describe the nucleus from this fundmental point of view.

In order to study the effects of the composite quark structure of neutrons and protons in normal nuclear matter, it is necessary to have a probe distances of less than 10^{-14} cm, about one-tenth the radius of a proton. This goal sets the accelerated energy at 4 GeV. Although the electromagnetic force has the advantage of being well-known, it is a relatively weak interaction and leads a low event rate per electron. This can be compensated for by increasing the beam current. While existing electron accelerators can achieve high energy with high currents, they lack one crucial aspect: the electron beams are pulsed in time. This limitation resulted from the existing accelerator technology at the time they were built. The coincidence studies of complex nuclear events requires very high current to achieve an adequate event rate. But unless the precision beam is continuous in time the interesting events will be hidden by a large background rate. The physics criteria then set the requirement for CEBAF:

a) Continuous Electron Beam in Time
b) Energy of at least 4 billion electron volts (GeV)
c) High Average Beam Current of 200 microamperes.

The CEBAF project represents the end results of over two decades of intense research in the nuclear science community to develop the next generation electron accelerator. This was initiated in the late 1960's with the construction effort on superconducting accelerators at Stanford University supported by the National Science Foundation. The technical difficulties encountered with this approach forced an evaluation of alternative designs. The R&D effort was intensified after the Livingston Report was issued in 1976, again strongly endorsing the importance of the electron accelerator for the future of nuclear science. The last six years have seen active research programs at universities and national laboratories to design an accelerator to achieve the required accelerator parameters. The considerable funds and personnel effort expended by the science community on this goal is a strong indication of the importance of the physics and urgency for the construction of the accelerator. The results of these efforts were submitted as proposals for a peer review to a subcommittee of the NSAC, the Bromley Panel. It must be emphasized that CEBAF represents the culmination of two decades of intensive design and development. The nuclear science community has been quite conservative in its approach to this accelerator. It has waited until an accelerator design was achieved that incorporated existing technology that assured its success and was extensively based upon past experience so that it could be accurately costed. The accelerator proposed by SURA is based upon "mature" accelerator principles and devices. There are no unknown aspects that could lead to failure or significant cost increases.

The Linac Pulse Stretcher Ring designed proposed by SURA combines two existing technologies to achieve the desired characteristics: a high intensity pulsed linac similar to SLAC and a storage ring. The technology of both devices are well-understood but to achieve the desired intensity they must approach the current state of the art. The linac produces a pulse one-millionth of a seocnd long one thousand times a second. The storage ring converts the time pulse beam from the linac into a continuous ring of electrons in space. The electrons are extracted over a period of one-thousandth of a second, providing a continuous electron beam during this period. After all electrons have been extracted from the ring the linac is prepared to provide the next pulse to fill the ring and start the entire extraction procedure over again. The design allows a continuous beam to be provided 90% of the time.

The Linac Pulse Stretcher Ring design offers considerable flexibility: a straightforward expansion allows the extension to higher energies. Additional experimental stations can be built and additional storage rings can be added for a variety of nuclear physics and other applications, such as high energy synchrotron radiation sources. Space is being reserved to accommodate a number of such multipurpose storage rings in the event the demand arises.

Since the Bromley Panel's recommendation, the accelerator design and cost estimates have been refined. Our present estimated construction cost, using a five-year construction period and assuming that $2 million will be available in FY 1985, is approximately $224 million. This amount includes inflation to the year in which construction takes place.

SURA can now begin the staff buildup and to employ an A&E firm for advanced studies of the accelerator and support facilities. The $2 million in FY 1985 construction funds are needed to renovate space in the Space Radiation Effects Laboratory building. This space will be used to house the engineering and design staff and to provide facilities for prototype testing of elements that are the result of advanced R&D. The FY 1985 construction funds will also be used to start the engineering designs for the accelerator and the A&E work for conventional construction. The $5 million for R&D in FY 1985 is needed to continue the development of prototypes of critical accelerator components and to carry out detailed accelerator studies of various aspects of the linac, pulse stretcher ring, and beam transport system.

Let me conclude by thanking you for the opportunity to discuss the CEBAF project with you.

NUCLEAR WEAPONS PROGRAMS

STATEMENT OF WILLIAM ARKIN, DIRECTOR OF NUCLEAR WEAPONS RESEARCH PROJECT, INSTITUTE FOR POLICY STUDIES

ACCOMPANIED BY THOMAS B. COCHRAN, SENIOR STAFF SCIENTIST, NATURAL RESOURCES DEFENSE COUNCIL

Chairman HATFIELD. Mr. Thomas Cochran and Mr. William Arkin representing the Natural Resources Defense Council.

Mr. ARKIN. Thank you, Mr. Chairman; for providing us the opportunity to testify today. I am William Arkin, director of the nuclear weapons research project of the Institute for Policy Studies. Accompanying me is Dr. Thomas Cochran who is the senior staff scientist at the Natural Resources Defense Council.

Chairman HATFIELD. Glad to have both of you gentlemen here. We have your written statement and if you wish to summarize it, proceed.

Mr. ARKIN. I think that the primary purpose of our visit today is to try to help you to find money so that you can fund other things besides nuclear weapons programs. So, primarily we are concerned in addressing the totality of the $7.8 billion atomic energy weapons budget. We hope to concentrate our testimony in two portions on nuclear artillery and naval tactical nuclear weapons on the weapons side and then on nuclear production and nuclear material production initiatives on the material production side, so I will quickly summarize our views on these two subjects and then ask Tom to discuss nuclear materials.

155MM ARTILLERY SHELL

As far as we are concerned, the primary problem that exists in the Department of Energy budget this year is not so much the weapons budget, but a weapon system which is conspicuously absent from the budget and that is the one that deals with the nuclear artillery shell. As this committee is well aware and as you are well aware, Mr. Chairman, this shell has been a controversy ever since its development began.

What is interesting, however, is that the Department of Energy did not include the shell in this year's budge request and this is not to say, however, that the development of this weapon system or the continuing movement forward of this is finished. I think that there are a number of indications that Army and Navy officials are lobbying very hard for the inclusion of this artillery weapon in the budget this year, either as a part of the conference or as a part of the shore activity. The current argument in favor of the 155mm shell, of course, is a switch on the part of the Army. While arguing before that the W-82 nuclear artillery shell was necessary in order to bolster and to have two different types of artillery, the current argument is that perhaps the W-79, the enhanced radiation warhead which the Senate passed in 1981, was a mistake and that the $1 billion which we have already spent on neutron bombs, artillery warheads which are being stored in upstate New York and are not being shipped to Europe, maybe that spending was a mistake.

The Army's argument now, which we think is worthy of some consideration but yet being worthy of close scrutiny, is that perhaps funding should be shifted from the 8-inch nuclear artillery shell to the 155mm nuclear artillery shell because when push comes to shove, the Army will prefer to have the 155mm shell. So I think that there is going to be activity in the coming year where the Army is going to attempt to resurrect the 155mm shell in exchange for the 8-inch nuclear artillery shell.

We oppose the production of the 155mm nuclear artillery shell, Mr. Chairman, and we also encourage this subcommittee to stop production this year of the W-79, 8-inch nuclear shell, which is part of the budget. We believe that the Army should go back again and decide what is the future of nuclear artillery and what is the future of the status of the nuclear stockpile, particularly given NATO's agreement last year to withdraw 1,400 nuclear warheads from Europe. It seems to me that now moving ahead with 800 new 8-inch warheads at the same time when the 155mm warheads are sitting in the background for future budgets is a mistake and the Army should hold off on further producing W-79 warheads until they can decide what it is that they really want with the artillery.

TACTICAL NAVAL NUCLEAR WEAPONS

Moving on to tactical naval nuclear weapons, this is an area of the Department of Energy budget which we believe, Mr. Chairman, is going to provide a significant amount of funding in future years. The Navy currently has five different nuclear warheads under development—three of them are for antisubmarine warfare and two of them are for antiair warfare.

The most specific warhead that we would like to address today is the W-81 nuclear warhead with standard two missile. This warhead is planned to go into phase 4 production engineering in this fiscal year to develop it and then to enter production in fiscal year 1985. As you are well aware, Mr. Chairman, that W-81 standard missile warhead is a fission warhead, a warhead that the Navy has still not come to terms with in terms of whether or not it is a warhead when used in the defense of surface ships that carry battle groups with respect to those surface ships that carry battle groups, so detrimentally so that they would nullify the operations of those ships.

In addition, in the fiscal year 1983 budget the Department of Energy initiated work on a new antiair warhead, the Phoenix missile, and this is now beginning to compete with the standard missile as to whether or not it is going to be antiair weapon for Navy battle groups or whether the standard missile is going to be a warhead for Navy battle groups. So there are two antiair warfare weapons under development now and this committee should urge the Navy to look closely at whether or not they need both of these warheads or only one of them. Certainly, the W-81 standard missile warhead should not move into production before the Navy determines what the future of its nuclear air defense for its battle groups is.

In the area of antisubmarine warfare the Navy has three different warheads under development now for deployment in the late 1980's and early 1990's. One of these warheads, the antisubmarine warfare standoff weapon which will replace the SUBROC missile currently deployed aboard attack submarines, is going to have significant technical problems as it moves forward.

The desire of the Navy to have a common warhead feature which will be able to interreplace either conventional or nuclear ordnance on the same initial body is a technological feat which the laboratories have been working on for a number of years and also the technical practicality of being able to fire a missile over long distances from a submarine so that the effects of nuclear weapons do not hurt the submarine itself is a serious problem.

We also urge the subcommittee to ask the Navy to go back and look at its antisubmarine warfare development programs where there are currently three warheads and to find out what is it that our policy is on nuclear antisubmarine weapons. I would remind the chairman that the Navy now has over 2,000 antisubmarine warfare nuclear warheads in the stockpile and this is intended for the destruction of some 200 ocean-going Soviet submarines—which I believe is nuclear overkill in anyone's book—besides the fact that the Navy has considerable conventional antisubmarine warfare capabilities and those conventional capabilities are significantly improving as our sensors and the range and the accuracy of our weapons are improving.

The future of nuclear armed antisubmarine weapons should be closely scrutinized. I think that just because the older nuclear weapons are getting old does not mean that they should be replaced if, in fact, the Navy's conventional capacity for destroying enemy submarines has improved in the past 20 years since these original weapons were deployed. Then I think that the need for any type of antisubmarine warfare nuclear weapon is questionable.

I now would like to turn over the microphone to my colleague, Dr. Thomas Cochran, to address nuclear materials production.

NUCLEAR MATERIALS PRODUCTION PROGRAM

Mr. COCHRAN. DOE has undertaken a number of initiatives to boost the production of plutonium and tritium for new nuclear weapons. DOE is currently producing some 2.5 metric tons of plutonium-equivalent for weapons annually, almost twice the rate of the late 1970's. DOE expanded materials output in response to the nuclear weapons stockpile memoranda of October 1980 and March 1982. Yet, as a result of administration and congressional decisions, the pace of the projected buildup has been tempered.

DOE is currently able to produce plutonium and tritium to meet all its nuclear weapons production schedules. In our view, there are serious questions as to the need for yet three more DOE proposals to increase materials production: the new production reactor, the startup of the L-reactor at Savannah River plant; and plutonium laser isotope separation technology.

NEED FOR NEW PRODUCTION REACTOR

We are very concerned about the momentum which is building for the construction of a $4 to $8 billion new production reactor. The fact is, with the slowdown in the initial buildup proposed in the 1980 and 1982 memoranda, the United States simply does not need to start building another production reactor. We believe that the NPR can be safely deferred for at least a decade.

Furthermore, much less expensive alternatives to the NPR are, we believe, a refurbished N-reactor at Hanford or a refurbished L-reactor at Savannah River plant. Neither of these alternatives need be implemented before the 1990's.

In regard to the L-reactor, DOE remains embroiled in a controversy over its plans to start up the refurbished facility. DOE has also recently admitted that there will be a further delay in the startup of the L-reactor which was initially planned for last October. It is our view that further environmental and safety improvements should be made in the L-reactor and related operations at Savannah River plant prior to its startup so that the L-reactor will meet the same standards applied to commercial nuclear powerplants throughout the Nation.

LASER ISOTOPE SEPARATION

We believe that the United States needs to have an adequate national defense and provide the national security and at the same time meet our environmental requirements. The development of the plutonium-laser isotope separation technology is dangerous, we believe, and not cost effective, and it should be terminated. DOE initially claimed that this technology would provide a mechanism for accessing some 70 to 80 tons of plutonium in the commercial nuclear powerplants in the United States. The Congress rejected that idea recognizing that it has long-standing nuclear nonproliferation objectives. As you recall, the Senate voted overwhelmingly 88 to 9 to pass the bill introduced by Senators Hart, Simpson, and Mitchell.

DOE nevertheless has not been deterred from proceeding with Pu-LIS development. DOE is now claiming that the primary justification for Pu-LIS is to enrich 11 tons of its 15 tons of fuel-grade plutonium. The fact is that most of this plutonium resides in the U.S. breeder reactor program and just as its use in the use of commercial reactor plutonium is inconsistent with our nonproliferation objectives to the removal of the plutonium from the U.S. civil breeder program would similarly be inconsistent.

We ask the committee to consider extending the Hart-Simpson-Mitchell amendment to cover DOE's civilian R&D plutonium stockpile by prohibiting the expenditure of funds to divert such peaceful plutonium to the production of nuclear weapons. With this prohibition, at most 4 tons of plutonium, produced in the N-reactor and never transferred from the weapons program, would be available for weapons manufacture. This small amount would be too small to justify continuation of the plutonium LIS acknowledged.

In any case, DOE has recently admitted that the Pu-LIS technology is the most expensive of the various methods increasing plutonium production. With recent reductions in planned new weapons and DOE's greatly increased plutonium- equivalent production rate, now almost twice that of the late 1970's, there is going to be a surplus of plutonium production capacity in the 1990's, not a shortage, and, therefore, you cannot justify rushing ahead with plutonium LIS technology in the 1990's on the basis of some shortage.

PRODUCTION OF HIGHLY ENRICHED URANIUM

Finally, DOE is requesting funds in the fiscal year 1985 budget to prepare to begin highly enriched uranium production for weapons in the 1989–90 timeframe. The need for additional highly enriched uranium in the 1990's we believe is overstated. We would be surprised if improvements in the proficiency of the use of nuclear materials did not offset the additional requirement for highly enriched uranium to meet the weapons request.

We recommend that the Congress take a close look at whether new HEU production is warranted. We seriously question whether the reconditioning of the facilities at Y–12 for this purpose is needed.

Thank you very much, Mr. Chairman.

Chairman HATFIELD. Thank you.

[The statement follows:]

STATEMENT OF WILLIAM M. ARKIN, DIRECTOR OF NUCLEAR WEAPONS RESEARCH PROJECT, INSTITUTE FOR POLICY STUDIES

Mr. Chairman, I am William Arkin, Director of the Nuclear Weapons Research Project of the Institute for Policy Studies. Accompanying me here today is Dr. Thomas B. Cochran, Senior Staff Scientist at the Natural Resources Defense Council (NRDC). We are co-editors of the Nuclear Weapons Databook, a series of reference works on nuclear weapons. Along with Dr. Milton Hoenig, who is an NRDC consulting physicist, we are co-authors of Volume I of the Databook, U.S. Nuclear Forces and Capabilities. It was published in January of this year.

We recognize that it is very rare for outside witnesses to appear before this Subcommittee on the nuclear weapons budget. Thus, we appreciate very much this opportunity to testify on the Fiscal Year 1985 appropriations bill for Department of Energy (DOE) Atomic Energy Defense Activities.

DOE nuclear weapons spending has more than tripled since FY 1980 to $7.8 billion. Not much attention has been focused on this growing portion of the military budget. In our testimony, we would like to focus upon three major elements of the FY 1985 request: nuclear artillery, tactical naval nuclear weapons, and nuclear materials production.

Nuclear Artillery

Today the Army and Marine Corps, as well as Allied armies, have deployed eight-inch and 155mm artillery guns, which are able to fire either nuclear or conventional projectiles. The guns are supplied principally with conventional shells, but a majority are certified to fire nuclear warheads. Nuclear shells were originally fielded in the 1950s, and today over 2,000 have been deployed, predominantly in Europe.

Over the last decade, the Army's plans to replace these warheads have become very controversial. First, there have been questions raised concerning continued reliance upon forward-based nuclear battlefield weapons in Europe. Second, the Army's choice of enhanced radiation warheads or so-called "neutron bombs" proved to be unacceptable to many Europeans. Third, there has been growing concern regarding the high cost of these warheads.

The production of the enhanced radiation W-79 warhead for the 8-inch gun began in 1980. Already close to $1 billion has been spent and about half of the planned 800 W-79's have been manufactured. Yet not a single one of these warheads can be deployed in Europe, because they are politically unacceptable to NATO governments. Many Americans would be appalled if they realized that these warheads are still sitting in storage in upstate New York.

The lessons of the W-79 have not been entirely lost. The Carter Administration cancelled plans for the comparable enhanced radiation warhead for the 155mm gun, the W-82. However, the Reagan Administration resurrected plans in 1981 to build some 900-1000. At $3 million apiece, the W-82 would be the most expensive artillery shell ever manufactured. Last July, the Senate terminated funding for this warhead and now DOE has decided not to request production of the W-82 in FY 1985.

Yet, the W-82 is not dead. Engineering development for the warhead continues, and its backers in the Defense Department are lobbying hard to have production funding reinstated. Some are now arguing that the W-82 should be converted to a pure fission design and that production of the undeployable W-79 be curtailed.

We seriously question the Army's insistence that nuclear warheads for both 155mm and 8-inch guns are required. It does not appear to be justified. Since deployment of the original warheads in the 1950s, 155mm and 8-inch guns have been widely dispersed in Army divisions. The difference between heavy and medium artillery guns is no longer that significant. Innovations in rocket assist projectiles and fire control allow both guns to attain similar ranges, explosive power and accuracy.

It is clear to us that there does not exist a coherent U.S. plan for nuclear artillery. Adding to this confusion is the recently announced NATO decision to withdraw 1,400 battlefield nuclear warheads from Europe over the next few years. We believe that rather than allowing the present drift to continue, the Congress must make some fundamental decisions about the future of nuclear artillery warheads. We ask the Subcommittee to force the necessary review by deciding *not* to appropriate any funds for either the W-79 or W-82 until the Defense Department can explain how these weapons fit into changing Army doctrine or NATO deterrent strategy.

Tactical Naval Nuclear Weapons

The second issue we will address is tactical naval nuclear weapons. The Navy is on the road to replacing its entire inventory of nuclear weapons at sea with a new generation. Yet once again this program is moving ahead without a clear plan or justification. The DOE FY 1985 budget request includes funding for work on five different naval warheads, two for anti-air warfare and three for anti-submarine warfare.

In regard ~~to~~ anti-air weapons, DOE has proposed to begin the production of W-81 warheads for Standard 2 surface-to-air missiles in FY 1985. The Standard 2 is proposed to replace the nuclear-armed Terrier, which was initially deployed in 1956. Yet this weapon is controversial; and there remain a number of major questions which must be answered prior to initiating W-81 production.

Since the start of on-again, off-again work on the warhead in the mid-70s, the Navy has remained adamant on the need for a new last-ditch nuclear defense missile for naval ships. But one of the unresolved difficulties is the serious damage that might occur to a ship's electronics from a defense nuclear warhead exploded relatively close to the fleet. There is also a serious question as to the usefulness of such a nuclear-armed defense in light of existing requirements for Presidential control. Since the development of the weapon began in the mid-1970's, Soviet anti-ship cruise missile (ASCM) capabilities have also significantly improved to the point where Navy officials now admit that the Standard 2 is outmatched. In addition, design was initiated in FY 1983 on still another anti-air nuclear warhead to arm the Phoenix air-to-air missile, which is to be launched from F-14 Tomcat interceptors. Since this nuclear warhead is intended to arm the primary long-range air defense element of naval forces, it calls into question the entire W-81 nuclear warhead program, which now appears redundant. Last year, the Congress refused to fund the production of W-81 and we urge that the Subcommittee do likewise this year.

Three anti-submarine warfare (ASW) nuclear warheads are also under development, a part of the ASW Standoff Weapon (ASWSOW) program. These three new nuclear-armed weapons -- the ASWSOW for submarines, the Vertical Launch ASROC for surface ships, and a new air-delivered nuclear depth bomb -- are in earlier stages of development, but deserve close scrutiny before they enter the engineering phase. They are intended to replace the SUBROC missile currently deployed aboard attack submarines, the ASROC deployed aboard surface ships, and the B-57 nuclear depth bomb.

The nuclear ASW warhead program has been in constant flux for a number of years. Since 1981, the ASW warheads have been restructured twice, once to consolidate all three into a "common" generic program and the second time to split them again into three different programs, with new names and different development dates. The three warheads, however, should be looked at as a group. U.S. nuclear ASW weapons, in addition to the considerable conventional ASW forces, now number over 2,000 nuclear warheads. These are intended to destroy some 200 ocean-going submarines of the Soviet Navy, nuclear overkill in anyone's book.

A new generation of ASW nuclear warheads should not move forward merely because the present generation is getting old. There are several outstanding questions which must be addressed before Congress approves these systems, including:

- What is U.S policy for using nuclear weapons in a war at sea? It is not as if the oceans were like the continent of Europe where aggression is measured by crossing borders and a rationale for nuclear retaliation is clear.
- Would ASW nuclear weapons be used only to protect submarines and to to defend against nuclear attacks, or would they serve offensive purposes?
- What are the implications of exploding nuclear warheads underwater within close proximity of submarine launching platforms? Would not the effects on sonar and communications nullify the usefulness of the platform which was ostensibly being defended against destruction?
- Finally, what about arms control? Both the U.S. and the Soviet Union are significantly upgrading their nuclear threats to enemy naval forces, completely outside of any arms control constraints. A forum does not even exist for the U.S. and the Soviet Union to discuss nuclear arms control at sea.

DOE's Nuclear Weapons Material Production

The third issue we would like to address is nuclear weapons materials production. Over the last three years, DOE has undertaken a number of initiatives to boost the production of plutonium and tritium for new nuclear weapons. These have included converting the N-Reactor at Hanford to the production of weapon-grade plutonium, restarting the PUREX processing plant at Hanford and dramatically increasing operating efficiency of the reactors at the Savannah River Plant (SRP). Since FY-1980, overall funding for nuclear weapons materials production has increased over 300% to some $1.9 billion.

DOE is currently producing some 2.4 metric tons of plutonium-equivalent for weapons annually, almost twice the rate of the late 1970s. A program is underway to further boost plutonium output by 25% at SRP through use of a new core design. Increased production of materials is rather insignificant when one takes into account the total inventory of

U.S. nuclear materials, including some 600 tons of highly-enriched uranium, some 90 tons of plutonium, and some 50-100 kg of tritium (4-8 tons of plutonium-equivalent). With the exception of tritium which has a half-life of about 12 years, these materials do not wear out. Old warheads are the major source of fissile materials for new ones.

DOE expanded materials output in response to the Nuclear Weapons Stockpile Memoranda of October 1980 and March 1982. Yet, as a result of Congressional and Administration decisions, the pace of the projected buildup has been tempered. The number of planned MX missile warheads has been reduced from 2000 to 1000. Plans to build 1000 W-82 155mm enhanced radiation warheads have been cancelled. The number of projected sea-launched cruise missile warheads has fallen, and other warhead plans have been stretched out.

DOE is currently able to produce plutonium and tritium to meet nuclear weapons production schedules. Indeed, DOE has established a new requirement for a 5-ton reserve of plutonium, the desirability of which has received virtually no public attention. In our view, there are serious questions as to the need for yet three more DOE proposals to increase materials production: the New Production Reactor, the startup of the L-Reactor at SRP, and Plutonium Laser Isotope Separation.

We are very concerned about the momentum which is building for the construction of a $4-8 billion New Production Reactor (NPR). DOE has already spent $12.7 million on NPR feasibility and design studies, and intense lobbying has begun to determine a site for this facility. The fact is that the United States simply does not need to start building another materials production reactor. We believe that the NPR can be safely deferred for at least a decade.

DOE justification for the NPR is that it will be required to meet increased tritium needs in the mid-1990s. However, as a Congressional report (HASC98-124) stated last May there is "no basis to assume that large numbers of new weapons will be produced in the years beyond 1990" and that needed tritium could come from the SRP reactors. The Subcommittee should also take into account the decisions to cancel the 155mm artillery shells and Sentry ABM, both using enhanced radiation warheads. This has significantly reduced tritium demand, roughly equivalent to 10 years of reactor operations.

Much less expensive alternatives to the NPR are, we believe, a refurbished N-Reactor or the L-Reactor. Neither of these options need be implemented before the 1990s. DOE is already considering extending the life of the N-Reactor beyond the mid-1990s with the installation of a new graphite core.

In regard to the L-Reactor, DOE remains embroiled in a controversy over its plans to start up the refurbished facility. This reactor can no longer be operated as it was thirty years ago. DOE has begun to take steps to bring SRP into compliance with federal and state environmental law and to properly dispose of its vast accumulation of radioactive and chemical wastes. DOE has also recently admitted that there will be a further delay in the startup of the L-Reactor which was initially planned for last October. It is our view that further environmental and safety improvements should be made in the L-Reactor and related operations at SRP prior to its startup so that the L-Reactor will meet the same standards applied to commercial nuclear power plants throughout the nation. We hope that the Subcommittee will view the L-Reactor as essentially a new facility and will require the needed environmental and safety upgrades.

The development of the plutonium-laser isotope separation (Pu-LIS) technology is dangerous and not cost effective and should be terminated. This technology was originally promoted as a method for enriching the 70 to 80 tons of plutonium produced by commercial nuclear power plants to weapon-grade for use in U.S. nuclear weapons. Fortunately, Congress, recognizing that this would seriously undermine U.S. nonproliferation efforts, amended the Atomic Energy Act in late 1982 to prohibit the use of plutonium from licensed nuclear power reactors in nuclear weapons. The Senate vote on this amendment introduced by Senators Hart, Simpson, and Mitchell was an overwhelming 88-9.

DOE, nonetheless, has not been deterred from proceeding with Pu-LIS development. DOE is now claiming that the primary justification for Pu-LIS is to enrich 11 tons of its 15 tons of fuel-grade plutonium. (Four tons is earmarked for blending to obtain weapon-grade plutonium.)[*]. But about 7 tons of this plutonium has already been fabricated into fuel for the Fast Flux Test Facility (FFTF) and the Zero Power Plutonium Reactor part of the civil breeder reactor development program. Furthermore, a large fraction of the plutonium in these civilian facilities (about 4 tons) was obtained in barter from the United Kingdom and was produced in British civil power reactors. The remainder could be from the fuel-grade plutonium produced in the N-Reactor before 1982.

In any event, transfer of the 7 tons from the U.S. civil breeder program to weapons would violate the traditional barrier between "atoms for peace" and "atoms for war." We ask the Subcommittee to consider extending the Hart-Simpson-Mitchell amendment to cover DOE's civilian R&D plutonium stockpile by prohibiting the expenditure of funds to divert such "peaceful" plutonium to the production of nuclear weapons. With this prohibition, at most 4 tons of plutonium, produced in the N-Reactor and never transferred from the weapons program, would be available for weapons manufacture.

DOE has recently admitted that the Pu-LIS technology is the most expensive of the various methods increasing plutonium production. (DOE, FY-1985 Budget Request, Vol 1, p. 407). Although DOE has already spent some $181 million on Pu-LIS, there is no justification for spending several hundred million dollars more to complete the R&D and build a Pu-LIS production plant.

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[*] One part fuel-grade plutonium (12% Pu-240) when mixed with two parts super-grade plutonium (3% Pu-240) yields three parts weapon-grade (6% PU-240).

With recent reductions in planned new weapons and DOE's greatly increased plutonium-equivalent production rate, now almost twice that of the late 1970's, there is going to be a surplus of plutonium production capacity in the 1990s, not a shortage.

Finally, DOE is requesting funds in the FY 1985 budget to prepare to begin highly-enriched uranium (HEU) production for weapons in the 1989-1990 timeframe. This would be the first time DOE has produced HEU for weapons since 1964 when the U.S. and the Soviet Union simultaneously announced substantial reductions in the production of nuclear weapons materials. The need for additional HEU in the 1990s is overstated. The average warhead today is designed to be more efficient in its use of its fissile material (greater yield-to-weight) compared to 10-20 years ago. On the average, the ratio of plutonium to enriched uranium in warheads has been increasing over this period. We would be surprised if these factors did not offset the additional HEU required to meet new weapon requirements. After all, the total number of warheads in the stockpile is projected not to exceed the historical high of some 32,000 warheads in 1967. To the extent there is a projected shortage, it is surely a reflection of the fact that DOE's retirement schedule for obsolete warheads is in disarray. Congress should take a close look at whether new HEU production is warranted. We seriously question whether the reconditioning of the facilities at Y-12 for this purpose is needed.

Thank you.

DEPLOYMENT OF WEAPONS IN EUROPE

Chairman HATFIELD. Gentlemen, is there any sign the Europeans will accept the deployment of either the new 8-inch or the 155mm?

Mr. ARKIN. I think in the case of the 8-inch shell, Mr. Chairman, which is an enhanced radiation warhead, the administration itself has not even wanted to attempt to negotiate such deployment and we recognize what a disastrous political event such a negotiation entails. So in the case of the 8-inch warhead, the administration has made the case that this warhead should be produced because its deterrent effect is equivalent whether it is sitting in a depot in upstate New York or whether it is on the front lines in West Germany.

Since they use the argument on the 8-inch shell, then justifying the deployment of a neutron 155mm shell seems to be fallacious. First of all, the likelihood of being able to deploy that is no greater and there is no evidence that the Europeans are more interested in having a 155mm enhanced radiation warhead than having an 8-inch enhanced radiation warhead.

Now, of course, the Department of Energy officials and NATO officials are suggesting that the warhead be converted to a straight fission weapon and so, therefore, the deployment of it to Europe would be more palatable. However, as we well know from the Carter administration's experience with the neutron weapon, the weapon laboratory went back and converted these weapons from enhanced radiation to non-enhanced radiation. They included a feature which would allow these weapons to be quickly upgraded to enhanced radiation if that was desirable.

This is the plan for the Department of Energy. And so building a weapon which is a neutron weapon and in which the tritium would be available to upgrade this weapon to enhanced radiation, if necessary, as quickly as it would be to deploy it from the United States just does not make any sense, and I don't think the Europeans are going to be fooled by the fact that the Department of Energy is going to claim that it is building a fission weapon and that this weapon is more efficient or better able to serve some deterrent need than the weapons which we just deployed to Europe—the Pershing II and the groundless cruise missiles. The intended purpose was to increase our deterrence and, therefore, it seems to me that we should decide what it is that increases our deterrence, short-range or long-range weapons, and choose one or the other.

Chairman HATFIELD. Thank you very much.

Gentlemen, we appreciate your presence here and we appreciate your input. You have been very helpful in the past and, as you know, we don't often have outside witnesses testify on these programs. We are just happy to have you here.

Mr. ARKIN. Thank you very much, Mr. Chairman.

Mr. COCHRAN. Thank you.

GAS CENTRIFUGE ENRICHMENT PROGRAM

STATEMENT OF HON. BOB McEWEN, U.S. REPRESENTATIVE FROM OHIO

Chairman HATFIELD. I would like to invite our colleague from the House, Congressman Bob McEwen from Ohio.

Congressman, we apologize for being delayed in our schedule. I might tell you I was delayed over on your side testifying before Chairman Steve Solarz' committee, so we have the same problem here.

Mr. McEWEN. I understand, Mr. Chairman.

I would be delighted to submit my testimony for the record.

Chairman HATFIELD. We will accept it for the record and you may highlight or summarize if you wish.

Mr. McEWEN. If I may just take 60 seconds to begin by saying that I very much appreciate the effort you make in this committee and the very difficult task that you face.

If I may just recap my concern for the gas centrifuge enrichment plant in southern Ohio and that is that 3 years ago a program of construction of the first two process buildings was begun on a 4-year level of approximately $600 million per year for 4 years. Congress in 1982 and 1983 appropriated $588 million and last year I believe about $546 million. The final installment in the neighborhood of $600 million was anticipated this year.

However, because of a decision not to proceed with the third and fourth process buildings, the Department of Energy felt that they could go back to the contractors and streamline that request in some manner. The goal was to proceed with a Presidential request to this committee of about $450 million or, in other words, a savings of about $150 million, and that was the target that we were seeking in November and December of last year.

Secretary Brewer and Mr. Longnecker and the people involved in this project met with each one of the contractors and asked for an absolute bottom line that they could go with, understanding that their overhead costs would diminish as their decision was delayed for progress on buildings 3 and 4. The information we received from them was such that we were able to come before this committee this year with a request of $350 million for completion of the first two processed buildings. This is an absolute bare-bones minimum; it is actually a lower figure than we had hoped to achieve, and I am merely here to accentuate my personal interest in the request and to express my gratitude for the understanding and thoughtful consideration that this committee has given this project in the past.

Thank you, Mr. Chairman.

Chairman HATFIELD. Thank you very much, Mr. Congressman. We appreciate your taking the time to come over here and express your views.

Mr. McEWEN. Thank you very much, Mr. Chairman.

[The statement follows:]

STATEMENT OF CONGRESSMAN BOB MCEWEN

Mr. Chairman and members of the committee, I appreciate having the opportunity to comment on the Nation's uranium enrichment program. I fully support the $350 million Department of Energy request for continued construction of the gas centrifuge enrichment plant. As you know, construction of the plant began in 1978. At that time, the demand for enriched uranium exceeded supply. The United States had a monopoly on the foreign and domestic markets. Planners were concentrating on increasing capacity rather than on reducing price. Times have changed. Foreign suppliers have entered the picture, capturing 65 percent of the world market with a cheaper product and creating a worldwide glut of enriched uranium.

We no longer have the cushion of monopoly in planning our enrichment programs. We must respond to the challenge of competition by moving ahead in the development of new technologies that will reduce costs and allow the United States to offer a lower priced product. The GCEP technology is the first step in meeting this challenge. Let us follow it through and, together with continuing technological advancements, realize our goal of recovering our share of the world market for enriched uranium.

The $350 million budget request for the gas centrifuge enrichment plant includes $310 million for construction and $40 million for startup and operations. Construction at the GCEP site continues ahead of schedule. The first set III centrifuge was installed in November 1983, 2 months ahead of the date originally planned. The first two process buildings are structurally complete and enclosed and one-half of the first has been filled with set III centrifuges.

Fiscal year 1985 funds will be expended primarily for engineering of the facility to accept the set V machine, procurement, and construction activities on process buildings No. 1 and No. 2 and auxiliary buildings. These activities have been reduced to the minimum level necessary to maintain a viable project while retaining the flexibility to make GCEP the most economical plant possible.

Notwithstanding the progress in the GCEP plant, the Department has requested $150 million for continued research and development of more efficient, cost-effective technologies, proposing $72 million for the advanced gas centrifuge (AGC) program and $78 million for the atomic vapor laser isotope separation (AVLIS) program. Originally, DOE envisioned a 1987 decision between these two competing technologies. It recently determined, however, that the incremental benefits of continuing research and development of both through 1987 does not justify the expenditures involved. Hence, the Department has proposed accelerating the decision to May 1985. I am pleased to endorse this proposal. Private industry has testified that it is ready to proceed and time is of the essence to our Nation's energy future.

There are advocates of a wait-and-see policy; that is, canceling the purchase of any additional set III centrifuges for installation at GCEP and waiting for development of the best technology, whether that be AGC or the AVLIS. It is my understanding from experts in the field that valuable data is gained from the operation of these set III centrifuges. Whether the future of enrichment is lasers or centrifuges, or both, I do not believe the United States can sit still while we concede to foreign competition another vital industry employing scientific technology. Accordingly, I urge the committee's support of the full amount requested by the Department of Energy for the uranium enrichment program. Its overall strategy for regaining our share of the world marketplace is sound and its budget request appropriate to that end.

Thank you, Mr. Chairman, for the opportunity to express my support for this program.

HIGH-TEMPERATURE GAS-COOLED REACTOR PROGRAM

STATEMENT OF TOM JOHNSTON, VICE PRESIDENT, GA TECHNOLOGIES, INC.

Chairman HATFIELD. Mr. Tom Johnston of GA Technologies.

Mr. JOHNSTON. Mr. Chairman.

Chairman HATFIELD. Welcome, Mr. Johnston.

Mr. Johnston. Thank you.

I am vice president of GA Technologies. I would like to thank you for this opportunity to testify.

I want to cover three programs this morning in which GA is a major participant—the high-temperature gas-cooled reactor program, the space power program, and the magnetic fusion program.

I will start my testimony with remarks on the HTGR.

The Department of Energy HTGR program has been focused on completing the design, the development, and the licensing for a large 860-megawatt system for use in electricity production or cogeneration. GA along with the other major participants in this program—Gas Cooled Reactor Associates, Combustion Engineering, General Electric, and the National Laboratories—have made substantial progress toward that goal and we are quite proud of the activity.

However, over the past year trends have been identified to support an initiative by Congress and recent DOE guidance to refocus the HTGR program for fiscal year 1985. This refocused program will concentrate on smaller HTGR plants and will pay particular attention to features of those plants that would lead to increased public acceptance and to the ease of licensability of those plants. The program would continue to include design and supporting technology work on both what we call the integrated and modular HTGR concepts.

The 860-megawatt plant that I referenced is of the integrated design. The planned fiscal year 1985 program would make full use of the work that has been done to date on that design but would be concentrated on a smaller version of that plant.

Modular HTGR

The studies on the modular HTGR have been a part of the DOE program over the past several years and the majority of that activity has been defining the characteristics of such systems and determining the effect of past safety on the design and cost of these modular plants. It is the implication to past safety feature of these smaller plants which has drawn a great deal of attention to the concept over the past few months.

The work done on modular plants in sizes of up to several hundred megawatts thermal has shown that they can be designed so that they will be safe for even severe accident conditions without any reliance on engineered safeguard systems. This is accomplished by demonstrable physical properties such as passive conduction and/or radiation of the heat away from the core so that the core never reaches a temperature at which a fission product would be released even under these accident scenarios. If the licensing authorities give full credit to this passive safety feature, this would allow major simplifications of the nuclear system, would allow shortened schedules, and should lead to substantial reductions in overall plant costs. In these modular systems, really, the economics would be the key to the viability of the system because they are restricted in size.

During this past year, efforts have been underway to try and look at the economics. The initial results confirmed that these individual modular units, taking into account passive safety, would have lower unit capital cost than would be projected for conventional nuclear plants which were scaled down to the same size. Studies just completed have shown that multiple module plants can be fully competitive with mid-sized nuclear units or coal-fired plants with similar total electrical outputs. Thus far, there are very positive results regarding the economics of these plants and GS, along with the other participants in the program, believe that this activity should receive increased support in fiscal year 1985.

FUNDING REQUEST

It is our recommendation that $52 million, which includes $2 million for capital equipment, be included in the fiscal year 1985 Department of Energy appropriation bill for the HTGR program.

My full written statement also includes recommendations for continuation of the thorium recycle program which is a part of the HTGR effort, and also recommendation for support of authorization of HTGR safety research at the NRC.

SPACE NUCLEAR POWER PROGRAM

I would now like to mention space power. As a part of the SP 100 program, we at GA are currently working with Thermo-Electron Corp. and Rasor Associates to further the development of nuclear thermionics conversion. Thermionics is one of two technologies being pursued in the tri-agency SP 100 program. In fiscal year 1984, basic thermionics technology was funded in the Interior Appropriations Subcommittee; however, it was subsequently agreed that funding would be reprogrammed to DOE for nuclear fission. As the fiscal year 1985 DOE budget was prepared, these funds were in transit to DOE and, as a result, no fiscal year DOE funds were requested. GA Technologies and Thermo-Electron are recommending that $4.8 million be appropriated in the current DOE bill to support this technology. The level proposed is consistent with the technical and schedule objectives of the SP 100 program.

MAGNETIC FUSION PROGRAM

I would now like to move on to fusion. I would like to express our appreciation to this committee for the support of the fusion program in general over the years and, in particular, the program at GA.

GA has the longest and broadest involvement in fusion research, more so than any other industrial concern in the world, and with the perspective that we have gained from this involvement we believe that the top priority for the magnetic fusion program is an unequivocal demonstration that fusion is here. The key to such a demonstration is producing an ignited plasma. With the rapid advances that have been made in the past 18 months in the overall program, the scientific basis has been established to proceed with construction of such a device, the so-called Tokamak fusion core experiment—TFCX. These advances are broadly recognized and serve to crystallize within the fusion community overall support for proceeding with such an important project.

The only way to fully assess fusion's prospects is to build a fusion engine and see how it performs. The technology is there and the TFCX will teach us many things, including how to structure the transition of fusion to the commercial stage. At GA the ongoing program will be important in support of such a TFCX project. Our principal research vehicle, the Doublet III Tokamak, will be upgraded through the installation of a large dee vacuum chamber that will provide an ideal test bed for simulation of TFCX.

That concludes my statement.

Chairman HATFIELD. Thank you, Mr. Johnston. We appreciate your coming today to testify.

[The statement follows:]

STATEMENT OF TOM JOHNSTON, VICE PRESIDENT, GA TECHNOLOGIES, INC.

BUDGET RECOMMENDATIONS

	GA Technologies Inc. FY'85 Recommendation
HTGR	$52M (+17M)
Thorium Recycle	4.5M (+4.5M)
NRC HTGR Safety Research	1.6M
Space Nuclear Power (Thermionics Technology)	4.8M (+4.8M)
Magnetic Fusion	Support President's FY'85 Request

I am Tom Johnston, Vice President, GA Technologies Inc.

I appreciate your providing me this opportunity to testify before your Committee on three programs in which GA Technologies is a major participant - the High Temperature Gas-Cooled Reactor (HTGR) Program, the Magnetic Fusion Program and the Space Power Program.

I will start my testimony with remarks on the HTGR Program.

HTGR PROGRAM

The Department of Energy HTGR Program has been focused on completing the design, development and licensing for a large, 860MW(e) system for use in electricity production or co-generation. GA along with the other major participants in the program, Gas Cooled Reactor Associates (GCRA), Combustion Engineering, General Electric and the National Laboratories (and in particular, Oak Ridge National Laboratory) have made substantial progress toward that goal.

However, since that goal was established it has become apparent that a large segment of the utility industry has shifted their interest to smaller nuclear units than had been ordered in the past and in many instances smaller than the 860 MW(e) HTGR. This shift is related to both reduced forecasts of load growth and to utility financial constraints. Also, a number of recent studies, including those conducted by the Office of Technology Assessment (OTA) and the Congressional Research Service (CRS) have confirmed the interest in smaller nuclear systems and also concluded that new technical approaches which focus on concepts that can be built and licensed with more certainty should be pursued. It is for these reasons that GA is supporting an initiative by the Congress and recent DOE guidance to refocus the HTGR program.

The refocused HTGR program will concentrate on smaller nuclear plants and will pay particular attention to features which would lead to increased acceptance and ease of licensability through providing enchanced levels of inherent safety. This program would include design and supporting technology work on both the "Integrated" and "Modular" HTGR design concepts. The HTGR systems seem particularly well adapted to this shift in program direction. All HTGR's provide a high level of inherent safety from the use of inert helium as the coolant, a graphite reactor core and a ceramic fuel and fuel cladding which are stable to very high temperatures and a very large thermal heat capacity which leads to slow thermal responses to system transients or postulated accidents.

Integrated HTGR

The current 860 MW(e) HTGR is an "Integrated" design HTGR which is characterized by a configuration in which the reactor core and the four (4) primary system loops are all integrated within a single prestressed concrete reactor vessel. The planned FY'85 program would be able to make full use of the work done to date on the 860 MW(e) as it would be concentrated on the two (2) loop version of this reactor. The two loop plant would have a net electrical output of approximately 440 MW(e). The effort during FY'85 would be concentrated on advancing the design of the two loop plant and would evaluate modifications which extend the inherent safety features of the system or result in cost reductions.

Modular HTGR Program

Studies of small (less than 300 MWt) modular HTGR's have been receiving increased emphasis in the DOE program over the past several years. The majority of the modular activity has been conceptual in nature and directed at defining the characteristics of such systems and determining the effect of passive safety on the design and costs of modular plants. It is the implication of passive safety, which is a feature of small modular HTGR plants, which has drawn attention to the concept over the last few months.

The major features of the modular concept are illustrated in Figure 1. The design is characterized by an "in line" arrangement of all of the primary system components in a steel vessel. Either a pebble bed core such as is shown or a prismatic core (such as is used in the "Integrated" HTGR) can be considered.

The work done on modular plants in sizes of up to several hundred MW(t) has shown that they can be designed so that there will be essentially zero release of fission products from the core under even severe accident conditions without reliance on any active safety systems. This can be accomplished because the passive conduction and/or radiation of the heat away from the reactor core takes place at such a rate that the HTGR TRISO-coated fuel particles will not reach temperatures at which they will degrade and release fission products. If the licensing authorities give full credit to this feature, this would allow major simplifications of the nuclear system and to reductions in overall plant costs.

During the past year efforts have been underway by Bechtel to evaluate the costs of small modular systems. Early studies confirmed that individual modular units will have substantially lower unit capital costs ($/kWe) than would be projected for "conventional" nuclear plants scaled down to the same size. This reduction results primarily from the reduction in the number of safety related systems, the localization of nuclear construction requirements, the saving inherent in an increased level of factory fabrication and from the shorter construction schedule associated with small plants. Additional reductions in unit cost were identified from the deployment of multiple modules at a single site. Studies just completed have shown that multiple module plants can be fully competitive with single unit nuclear or coal fired plants with similar total electrical outputs. Additional work based on more detailed designs is required, however, to establish firmly the capital costs of these systems.

The above costs comparisons assume that the NRC does give credit to the passive safety features of the concept in the licensing process. A key factor supporting such credit is that the feature can be demonstrated and, in fact, we would hope that this could lead to "type certification" of the modular plant.

GA has developed a first order cost estimate and schedule for a program leading to the operation and testing of a prototype plant.

The total cost for the design, development and construction of a 100 MW(e) prototype HTGR is estimated at $673 million (1983 dollars). The breakdown of costs is approximately $174 million for design, $132 million for development (and design verification) and $367 million for plant hardware and construction. In addition to the above, the cost of the initial core fabrication and uranium would be $20 million.

No estimate has been made of the cost of operating the prototype plant during the startup and test operations or during subsequent power operations. Similarly, no estimate has been made of offsetting revenues from the sale of steam or electricity or from revenues that might result from the sale of the plant by the government at its commercial value.

Assuming program authorization in FY 1986, it is estimated that this plant could achieve initial full power operation in FY 1993.

With the positive results which have come out of the modular activity to date, GA and the other participants in the HTGR program believe that this activity should receive increased support through the Department of Energy in FY'85.

GA Technologies recommends that $52 million (including $2 million for capital equipment) be included in the FY'85 Department of Energy Appropriation bill for the HTGR Program. This budget level would permit: continuation of the effort on the Integrated HTGR design; an increased effort on the Modular HTGR and substantial progress toward resolving the open questions of this concept; a continuation of a redirected technology program supportive of both the Integrated and Modular design efforts; and sustaining an effort on advanced, higher temperature versions of the HTGR systems.

Thorium Recycle

The Thorium Recycle Program, under the direction of the Oak Ridge National Laboratory, is a critical part of the National HTGR program which has been supported and funded by your Committee for many years. We recommend your Subcommittee authorize $4.5 million to continue work in the following HTGR fuel recycle areas: storage of HTGR spent fuel; development of designs and economics for rail and truck shipping of spent HTGR fuel; development and testing of volume reduction methods; and development of packaging and disposal forms. This work would cover both the prismatic and pebble bed fuel element configurations which are under consideration for the modular HTGR.

NRC HTGR Safety Research

We would also encourage the Committee to support the FY'85 authorized level of $1.6M for HTGR safety research work at the Nuclear Regulatory Commission.

That concludes the portion of my statement dealing with the HTGR program.

SPACE POWER

GA has been an active participant in space nuclear power programs since the 1950's. While most space nuclear activities were terminated in the early 1970's, GA has maintained its expertise in thermionics and continued to develop space power technology in the areas of thermo-electric materials and systems, advanced nuclear fuels and gas-cooled reactor components and systems. Thermionics technology was developed at GA between 1959 and 1973 and we are currently working with Thermo-Electron Corp. and Rasor Associates to further its development. In the current SP 100 program thermionics is one of two technologies being pursued in the tri-agency (NASA, DOE, DARPA) program. In FY'84 thermionics technology was funded in the Interior Appropriations Subcommittee and late in the year the funding was reprogrammed to the DOE nuclear division. As the FY'85 DOE budget was prepared FY'84 funds for thermionics were in transit to DOE, consequently no FY'85 DOE funds were requested. Therefore, GA and Thermo-Electron Corp. are recommending $4.8M be appropriated in the current DOE bill to cover this important technology. This level is consistent with technical and schedule objectives of the SP 100 program.

FUSION PROGRAM

I would now like to discuss magnetic fusion. We at GA want to thank this Committee for your support of the fusion program in general and of GA in particular.

GA Technologies has the longest and broadest involvement in fusion research of any industrial concern in the world and we believe the top priority for the Magnetic Fusion Program is an unequivocal demonstration that fusion is here. The key to such a demonstration is producing a fusion fire, an ignited plasma. The tokamak program has established the scientific basis to proceed with construction of such a device--the Tokamak Fusion Core Experiment (TFCX).

The pace of progress in magnetic fusion research has continued to accelerate. In the tokamak area, the past 18 months has witnessed a number of important programmatic and conceptual milestones. These advances have served to crystallize within the fusion community support for proceeding with TFCX. The ongoing program at GA will play an important role in providing design input for the project. Our principal research vehicle, the Doublet III tokamak, will be upgraded through the installation of a large dee vacuum chamber that provides an ideal test bed for simulation of TFCX.

The only way to fully assess fusion's prospects is to build a fusion engine and see how it performs. Because of the progress in tokamak research, enough is now known to make TFCX a success. TFCX will teach us enough to structure the transition of fusion to the commercial stage. I urge you to provide the support needed to build upon the successes thus far and to proceed with the TFCX.

This concludes my prepared statement. I would ask that the booklet "High Temperature Gas-Cooled Reactor Program" be included in the Record. Thank you for the opportunity to present our views.

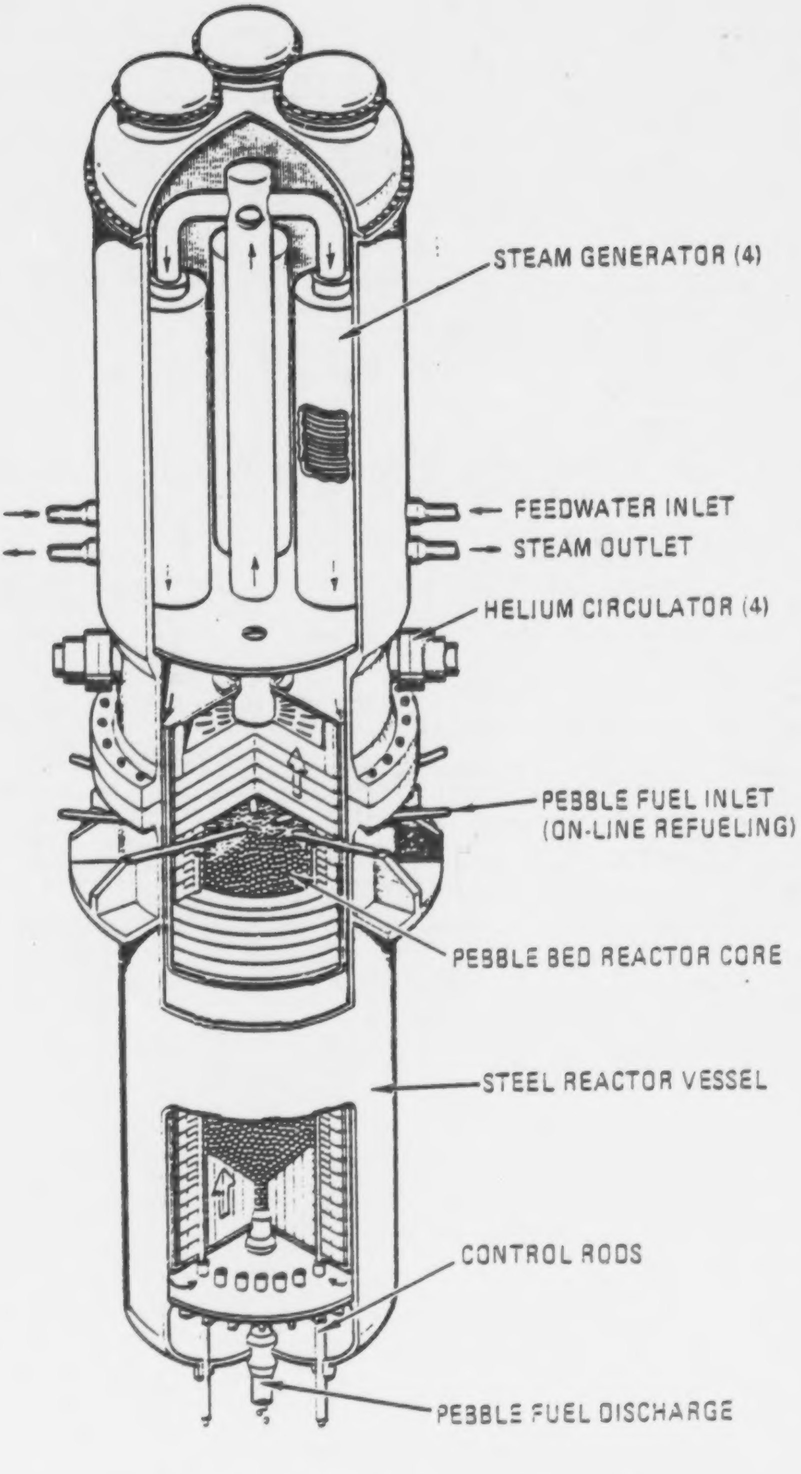
STEAM GENERATOR (4)
FEEDWATER INLET
STEAM OUTLET
HELIUM CIRCULATOR (4)
PEBBLE FUEL INLET
(ON-LINE REFUELING)
PEBBLE BED REACTOR CORE
STEEL REACTOR VESSEL
CONTROL RODS
PEBBLE FUEL DISCHARGE

Fig. 1 100-MW(e) modular HTGR

High-Temperature Gas-Cooled Reactor Program

STATEMENT OF RICHARD F. WALKER, PRESIDENT, PUBLIC SERVICE CO. OF COLORADO, AND CHAIRMAN, GAS-COOLED REACTOR ASSOCIATES

Chairman Hatfield. May I invite now Mr. Richard Walker to the table.

Mr. Walker. Thank you, Mr. Chairman.

My name is Richard F. Walker and I am president and chief executive officer of the Public Service Co. of Colorado in Denver, Colo. I am appearing here today as the chairman of the Gas-Cooled Reactor Associates which is an association organization of electric utilities in the United States representing about one-third of the generating capacity of our industry.

Our mission has been to preserve the high temperature gas-cooled reactor process as a viable alternative for our utility industry as we proceed through the rest of the century.

I endorse what Mr. Johnston said about the HTGR program and I will not repeat things that he went through as far as the dollars and the extent of the program because my recommendations pretty well parallel that.

STANDARDIZED PLANT DESIGN

I would like to take a few minutes to express the interest of utilities though in standardizing our nuclear plant design, particularly in the high-temperature gas-cooled, and also since we have kind of a window here with the lack of electric system low growth and some financial restrictions on the industry to relook where we are going in the nuclear technology.

A survey of our utility industry shows there is some interest in a simpler plant, possibly a smaller plant, that could be built more quickly, more of the things could be done in the manufacturing environment tested there, and we think the high-temperature gas-cooled reactor concept with its favorable characteristics of greater margins of safety, lower personnel exposure, and these things warrant consideration for taking a new look at how we go the nuclear generation route.

So as part of the DOE program for next year would be to look at sizes less than what we have been working on which Mr. Johnston referred to as the 860-megawatt electric plant, maybe look at one about half that size, and then more modular ones which would be down to the 100-megawatt level size should be grouped together and could be built faster.

We have to work against the economies of scale. Of course, as you go down the size, the cost goes up. We think there are some inherent advantages of smaller ones, the simpler ones, in getting them done faster. We are pleased that this committee and the committee in the House have supported our program in the past. We are appreciative of DOE including us in their budget this year and encourage them to continue to do so.

As I said previously, I support the amount of dollars that were previously mentioned, including the money for the NRC to work on the safety of the high temperature gas-cooled concept.

Very briefly, Senator, that is the summary of my statement.

Chairman HATFIELD. Thank you, Mr. Walker. Your full statement will be included in the record.

[The statement follows:]

STATEMENT OF RICHARD F. WALKER, PRESIDENT, PUBLIC SERVICE CO. OF COLORADO, AND CHAIRMAN, GAS-COOLED REACTOR ASSOCIATES

Mr. Chairman and Members of the Subcommittee, my name is Richard F. Walker, and I am President of Public Service Company of Colorado and Chairman of Gas-Cooled Reactor Associates (GCRA) which is a utility/user organization that supports the development of the High Temperature Gas-Cooled Reactor (HTGR). We appreciate the opportunity to present our point of view on the FY 1985 HTGR Programs at DOE and NRC. In summary, our FY 1985 budget recommendations would increase the HTGR funding level at DOE from their proposed level of $34.6 million to $52 million plus an additional $3 million to maintain the spent fuel treatment program. The basis for this proposed increase is to assure sufficient resources to complete the evaluation of smaller HTGR concepts, such as the modular HTGR, during FY 1985. For the HTGR Program at the NRC, it is recommended that $4 million be applied to support the development of unique safety criteria and licensing requirements for the HTGR. In concert with the DOE and NRC HTGR Programs, GCRA proposes to continue to provide Program integration and Project development services that are aimed at the objective of establishing the HTGR as an attractive commercial alternative in a timely manner.

To date, the approach to achieving this objective has been to establish a Lead Project from which commercial follow-on plants can be deployed. Despite the recent turmoil associated with nuclear energy, a systematic assessment of candidate HTGR systems, with the participation of potential vendors and owners, culminated in 1981 with the selection of a four-loop, 2240 MWt/855 MWe steam cycle plant as the reference Lead Project candidate. The market for this plant is the medium to large baseload capacity additions for electricity generation or cogeneration of steam and electricity, as well as the replacement market for retiring medium to large fossil and LWR plants. The Lead Project focus established to date has been responsive to the Congressional bases of support and has been instrumental in gaining Program stability. To date, the U.S. government and industry have invested approximately $1.5 billion in the HTGR, most of which is applicable to the Lead Plant. In particular, approximately $50 million has been invested in the conceptual design of the Lead Plant.

The reference Lead Plant candidate, like all HTGR concepts, is characterized by unique features that distinguish it from the current generation of nuclear power systems. The most notable of these features is the inherent safety and low environmental impact characteristics that translate to less reliance on engineered safety systems, added margins for meeting certain licensing criteria, added margins for plant investment protection, greater siting flexibility and reduced radiation exposure of plant personnel.

It is GCRA's position that the 2240 MWt HTGR is a viable candidate for a private sector Lead Project initiative. This position is supported by numerous independent assessments of the design and by operating experience with Fort St. Vrain and other gas-cooled reactors throughout the world. Confidence in the industry's ability to construct and operate plants of this size comes from recognition of the successes experienced by nuclear qualified utilities with large nuclear power facilities in the U.S. and abroad. Ongoing programmatic activities should emphasize the application of the conceptual baseline documentation, to be completed in FY 1984, for substantive pre-review interactions with the NRC on HTGR-specific licensing criteria.

During the past year, there have been a number of introspective studies and surveys, including a broad utility survey by GCRA, on the future of the nation's nuclear power industry. A recurrent message from these efforts is the need for the development of smaller, simpler nuclear power plants with minimal reliance on engineered safeguard systems. Within the HTGR Program, smaller alternatives to the 2240 MWt system have been identified that offer added dimensions of simplicity that may translate to overall performance and economic advantages. In one approach, a 1170 MWt/425 MWe design has been configured that was originally conceived simply as a two loop version of the reference four loop Lead Plant. However, with an emerging market interest in plants of this size range, an optimized version of an HTGR in this size range should be evaluated. Some of the key areas that must be addressed are as follows:

1) The approach to decay heat removal, including the use of passive systems.

2) The number and size of primary system coolant loops, the configuration of the PCRV and the ability to use a confinement rather than a containment-type enclosure.

3) The optimum approach to multiple unit plants and the sharing of common systems and facilities, plus greater use of modularity and conventional plant construction standards.

4) The closer evaluation of the features of the German HTR-500 (MWe) concept that is targeted for project commitment decisions by the end of 1985.

In the second alternative to the 2240 MWt system, an HTGR Modular Reactor System (MRS) has been conceived as independent reactor units of approximately 250 MWt/100 MWe that can be constructed as a cluster of modules or sequentially constructed to more closely match load growth requirements and reduce utility cash flow needs. Design work on the MRS is relatively recent, and less than $5M has been invested in defining and evaluating the concept. However, much of the technology investment for the Lead Plant is applicable for the MRS. Further, much of the HTGR technology investment in the Federal Republic of Germany, including the AVR developmental plant and the THTR demonstration plant, is expected to be particularly applicable to the MRS concept.

The intent of the MRS concept is to achieve greater inherent safety by removing the decay heat by the passive mechanisms of radiation, conduction, and natural convection without reliance on active engineered safeguard systems. The concept is based on limiting the core size and power density such that the fuel particle coatings retain the fission products to an acceptable degree under all circumstances, including the loss of all forced circulation or the failure of the pressure boundary. The economic challenge of the MRS concept is for the design simplicity afforded by the passive safety attributes to offset the economy of scale advantages of larger, integrated nuclear plants. To do so, it is intended that the nuclear steam (or heat) supply system will be shop fabricated to nuclear standards and the balance of plant field erected to predominantly conventional fossil plant standards. This approach is expected to improve the low productivities, reduce the schedules and reduce the field erection costs encountered on most of the recent nuclear projects.

The MRS concept is in the early stages of evaluation. Some of the key issues that must be addressed are as follows:

1) Sufficient design must be conducted to support economic analyses that will examine sensitivities in the costs and schedules for the modular HTGRs versus the integrated HTGRs and the other alternatives.

2) The safety goals of the MRS must be specifically defined and translated to licensing requirements and engineering terms. Key issues are the development and acceptance of design basis events, source terms and allowable fission product releases.

3) The design and development programs required to demonstrate the unique, inherent safety features of the MRS must be defined. Central to the MRS concept is the use of a fuel for which high integrity and low fission product release can be assured under all postulated reactor conditions. These design requirements place provisions on fuel manufacturing and performance that require extensive verification.

If commercial feasibility of the MRS is established, it is envisioned to serve the small to medium baseload generation and cogeneration markets as well as the replacement market for some of the retiring oil and gas-fired units that have been used for baseload applications. Further, the unit size of the MRS makes it particularly attractive as an export product to developing nations. It is GCRA's view that the MRS concept has significant technical and licensing potential. If economic incentives for the MRS are borne out in thorough technical studies, there will be justifiably strong utility/user support.

Common to any of the HTGR concepts and potential Lead Projects is the need to address the key institutional issues of vendor development, Program management and Project development responsibilities, and long-term budget stability. With regard to the latter issue, we are most heartened that the DOE has included the HTGR Program within their FY 1985 budget proposals to Congress at a level of approximately $35 million. In order to complete the concept evaluation of the mid-size integrated plant and the MRS by the end of FY 1985, we respectfully recommend that the HTGR Program at DOE be funded at an increased level of $52 million in FY 1985. In particular, GCRA estimates a $15 million effort will be required to complete the ongoing MRS concept evaluation. For the ongoing integrated plant design effort, GCRA estimates a $12 million effort will be required in FY 1985 to evaluate a mid-size plant and to establish the overall optimum approach for an integrated HTGR design. Pending a positive outcome from this effort, a Lead Project conceptual design could start in 1986. During this period, the technology development programs should be maintained at a level of $25 million, including $2 million for R&D equipment. The emphasis of the technology development should be toward the resolution of the critical technical and licensing issues that affect any Lead Project commitment decision. In addition, the HTGR spent fuel treatment program at DOE should be maintained with continued emphasis on spent fuel volume reduction, storage and disposal. In parallel with the DOE-funded development activities for the integrated and modular HTGR designs, ongoing Lead Project site and institutional development activities will be continued by GCRA and other prospective Project participants with the goal of selecting the optimum Lead Plant system by the end of FY 1985. Utility resources through GCRA have continued to increase in this area with approximately $2.5 million contributed in 1983 and approximately $3 million budgeted for 1984.

Also common to any of the HTGR concepts and potential Lead Projects is the need to resolve critical licensing issues that affect any commitment decision. These issues create a barrier to such a commitment either because they introduce uncertainty as to the ability to license a new concept within a given schedule, or because a prejudicial application of LWR licensing precedents could lead to a non-economical HTGR design. We believe the former barrier can be minimized by a licensing process which provides for an early design approval, prior to construction commitment. The latter barrier can be minimized by a top-down development of licensing criteria which consider the unique characteristics of the HTGR. It should be noted that this latter barrier is especially important in the evaluation of the potential for smaller, more inherently safe HTGR designs.

With regard to these barriers, we have been most heartened by the recent progress made in HTGR-related activities at the NRC. On November 15 of last year we were invited to brief the Commissioners on the status of the HTGR Program and safety characteristics of the HTGR design. Subsequent to that briefing, the Commission began work on the development of a regulatory policy for advanced reactors which specifically recognizes the need for special attention to the HTGR. The NRC Research Program achieved a major milestone recently by completing a multi-laboratory effort which assesses the anticipated or potential radiological releases that could result from severe accidents in a large gas-cooled reactor. This study provides a preliminary, but nonetheless comprehensive, basis for evolving criteria which recognize the inherent safety features of the HTGR.

In order to build upon the progress made in the last year and to support the continued resolution of licensing issues, we respectfully recommend that the HTGR Program at the NRC be funded at a level of $4 million in FY 1985. The NRC Program should continue its present efforts to develop the criteria and bases for licensing HTGR plants, as well as supporting any Fort St. Vrain licensing development issues. The NRC Program should focus on (1) the development of NRC positions on procedural matters, technical approaches and data requirements pertinent to the pre-construction approval of an HTGR design; (2) the establishment of general design criteria and siting criteria specifically for gas-cooled reactors; and (3) the development of HTGR-related code cases and technical positions. In this latter area, in support of the evaluation of smaller HTGR plants, it would be particularly instructive if the preliminary assessment of potential radiological releases from HTGRs completed last year was amended to consider the inherent advantages of the smaller core sizes. The above effort should, of course, be coordinated with the DOE-funded HTGR development activities to assure the efficient use of national resources. Further consideration should also be given to expanding cooperative efforts with the Federal Republic of Germany and Japan.

On the local front, I am pleased to report that 1983 has been another year of improving performance for Fort St. Vrain. As you know, the the Fort St. Vrain power plant first went critical in January 1974, achieved a 70% power level in January 1978, and was limited to that level by the NRC. In November 1982, after an extensive corrective program was completed by GA Technologies to resolve core temperature fluctuations, the NRC granted authorization to routinely operate at 100% power. In addition, the Public Service Company of Colorado continues to make investments in the plant that support its continued invaluable demonstration role. In 1983, we spent approximately $10 million and $9.3 million has been budgeted for 1984.

Fort St. Vrain has provided critical confirmation and demonstration of many key HTGR concepts. In particular, fuel integrity and radiation exposure to plant personnel have had an exceptional operating record. Operating data indicate that the amount of radioactivity carried in the helium coolant has been less than two percent of the design limit, demonstrating the structural integrity of the coated fuel particles and the graphite core structure. A comparison of personnel exposure data for Fort St. Vrain and light water reactor plants in the U.S. indicates that Fort St. Vrain has had an average annual person-rem exposure rate per GW(e)-year of approximately two orders of magnitude less than the average exposure rate in light water reactor plants. This low personnel exposure level is even more significant in view of the fact that Fort St. Vrain has virtually unlimited access into the reactor building for all operations and maintenance personnel. Other major contributions of Fort St. Vrain have been in the areas of core physics confirmation, plant control and response, and plant performance. Plant operating experience to date has demonstrated predictable performance even during extreme modes of operation, including temporary loss of forced cooling. The high core heat capacity has shown temperature transients to be slow, predictable, and easily controlled. Operation to date has achieved 1400°F primary loop helium temperatures, 1000°F steam temperatures, and a net efficiency of 38.5%--the highest of any nuclear plant in the U.S. As of year-end 1983, the Fort St. Vrain plant has delivered approximately 3.8 billion kilowatt-hours of net electrical energy, and in 1983, the plant exhibited its most satisfactory continuous run. We are confident that Fort St. Vrain will continue to provide valuable kilowatt-hours for our customers as well as critical information regarding the demonstration of many HTGR systems and components. My Company is proud of our role as owner/operator of Fort St. Vrain.

Mr. Chairman, we appreciate the opportunity to present the utility/user support and perspective on the HTGR Program to your Subcommittee. With your continued support, we will bring to fruition an HTGR Program that is responsive to utility needs and the Nation as a whole.

PHOTOVOLTAICS PROGRAMS

STATEMENT OF SIDNEY I. FIRSTMAN, TECHNOLOGY APPLICATIONS LABORATORY, GEORGIA INSTITUTE OF TECHNOLOGY

Chairman HATFIELD. Mr. Sidney Firstman.

Mr. FIRSTMAN. Thank you, Mr. Chairman.

Chairman HATFIELD. Mr. Firstman, we have your full statement here and we will put it in the record. Would you please summarize it; we would appreciate it.

Mr. FIRSTMAN. My name is Dr. Sidney I. Firstman and I am with the Georgia Institute of Technology. I have the pleasure of serving as director of the Technology Applications Laboratory. In my laboratory are resident several energy programs sponsored by the Department of Energy and its several field organizations. One of the programs that I am proud to have within my laboratory is that which addresses the difficult problems of integrating photovoltaic power into the Nation's electric utility grids and operations. Today I would like to speak with you about that program and about the broader program of photovoltaic utility integration research being conducted under the sponsorship of DOE and its Sandia National Laboratories.

By way of background, our program of research, focused at integrating photovoltaic power into utility grids and operations, began during the middle of 1981. That was when we at Georgia Tech began to work with Georgia Power Co., Southern Co., TVA, and several other utilities within the Southeast to help them identify the potential issues that must be addressed—and successfully resolved—if photovoltaic power is to become effectively integrated into their systems.

In January 1982 senior representatives of the Southeastern utilities visited DOE and met with Joe Tribble, then Assistant Secretary, and told Mr. Tribble that widely used distributed photovoltaics posed potential problems. Lacking solutions to these problems they told Mr. Tribble that utilities would, necessarily, severely restrict the use of distributed photovoltaic power. They identified and described potential problems in the areas of personnel safety, equipment protection, operation of grid, network stability, power quality, and service reliability.

They asked Mr. Tribble and DOE to share the cost of examining and resolving these problems that they said would be imposed on utilities and their customers as the result of DOE-supported research and development of photovoltaic power technology.

From that meeting with Mr. Tribble, DOE initiated a competition to obtain the support of utilities and research and development organizations to help resolve such problems. A Government-university-utility cooperative research program was awarded to Georgia Tech and the Southeastern utilities as a result of that 1982 competition. Housed within the Southeast Photovoltaic Residential Experiment Station, operated by the Florida Solar Energy Center, the program of research on integrating photovoltaic power into utility grids and operations is being conducted cooperatively by Georgia Tech and the Alabama Solar Energy Center who are the research groups working with the utilities and the Utilities Research Group whose function is to identify potential problems and oversee the research. We stress that the utilities that comprise this group are TVA, Georgia Power Co., Alabama Power Co., Southern Co., Florida Power Corp., Florida Power & Light Co., and Jacksonville Electric.

Let me note, if I may, the unique nature of this cooperative venture. The Utilities Research Group is active and involved. Each of the research activities is truly a cooperative effort involving the research organizations and the several utilities.

Work underway has been focused to date on understanding our photovoltaic power to create the services on the power line of similar quality. At the start there are some very important problems relating to protection which the utilities want to examine. What happens on their lines if their lines become separated as a result of disturbance on photovoltaic operating on these lines? In situations such as these, problems of safety of personnel and equipment could be severe, and both operational techniques and specialized equipment features are needed.

Other work was done in the area of distribution automation. I will skip the description of the concern here as to how much photovoltaic it will take; otherwise, it will be treated within the new wave of automated distribution and control systems from now on.

I want to note that equivalent research, we at Georgia Tech are conducting jointly with Alabama Solar what is being conducted under a cost-share arrangement. During fiscal year 1982 the Department of Energy provided funding of $266,850. Since that time the utilities have provided cost share in excess of $845,000 and Georgia Tech now has provided cost share in excess of $182,000. We, in fact, have, therefore, cost shared with DOE in the order of $4 of ours to $1 of theirs reflecting our commitment to this program.

I want to note that our work is embedded with a broader program at Sandia and in addition to our program they are working with four other regional facilities. We have gone into a cost-sharing arrangement with them to identify problems that they ought to deal with and plan experiments and they address these problems for the utilities. In addition, they are supporting the research activities that have been conducted in conjunction with our work at Sandia which has focused at the development of power commission units which are responsive to the technology needs of photovoltaics and system models of photovoltaic integration into utility grids which have been prepared by the University of Texas and Purdue University in conjunction with our Georgia programs.

Speaking then from the perspective of Georgia Tech and looking toward the broader DOE/Sandia program, I have two requests to make of the committee:

First, provide adequate fiscal year 1985 funding for system engineering—balance of system research on utility-focused technology—to continue to support the DOE share of the research program responsive to utility concerns; and second, provide specific language directing continued research on a photovoltaic frontier—integrating photovoltaic power into utility grids and operations—for fiscal year 1985 funding.

In particular we suggest the following budget and language be inserted into the DOE photovoltaics program:

> In systems engineering and standards, balance of systems research on utility integration technology should continue under the technical guidance of Sandia National Laboratories. The committee recommends that $3.5 million be allocated for this utility focused research in conjunction with complimentary research on array technology.

That concludes my statement, Mr. Chairman.

Chairman HATFIELD. Thank you very much, Mr. Firstman. We appreciate your presence at the hearing today and appreciate your testimony.

Mr. FIRSTMAN. Thank you, Senator.

[The statement follows:]

STATEMENT OF DR. SIDNEY I. FIRSTMAN, TECHNOLOGY APPLICATIONS LABORATORY, GEORGIA INSTITUTE OF TECHNOLOGY

SUMMARY OF REQUEST

We suggest the following budget and language be inserted into the DOE Photovoltaics Program:

> "In systems engineering and standards, balance of systems research on utility integration technology should continue under the technical guidance of Sandia National Laboratories. The Committee recommends that $3.5 million be allocated for this utility focused research in conjunction with complimentary research on array technology."

Members of the Committee, my name is Dr. Sidney I. Firstman and I am here from the Georgia Institute of Technology. At Georgia Tech, I have the pleasure of serving as Director of the Technology Applications Laboratory. In my Laboratory are resident several energy programs sponsored by the Department of Energy and its field organizations. One of the programs that I am proud to have within my Laboratory is that which addresses the difficult problems of integrating photovoltaic power into the nation's electric utility grids and operations. Today, I would like to speak with you about that program and about the broader program of photovoltaic utility integration research being conducted under the sponsorship of DOE and its Sandia National Laboratories.

Program Initiation

Our program of research, focused at integrating photovoltaic power into utility grids and operations, began during the middle of 1981. That was when we at Georgia Tech began to work with Georgia Power Company, Southern Company, TVA and several other utilities within the southeast to help them identify the potential issues that must be addressed -- and successfully resolved -- if photovoltaic power is to become effectively integrated into their systems.

In January 1982, senior representatives of the southeastern utilities visited DOE and met with Joe Tribble, then Assistant Secretary, and told Mr. Tribble that widely-used distributed photovoltaics posed potential problems. Lacking solutions to these problems they told Mr. Tribble that utilities would, necessarily, severely restrict the use of distributed photovoltaic power. They identified and described potential problems in the areas of:

- personnel safety
- equipment protection
- operation of grid
- network stability
- power quality
- service reliability

They asked DOE to share the cost of examining and resolving these problems that will be imposed on the utilities and their customers as the result of DOE-supported research and development of photovoltaic power technology.

Stemming from that meeting, DOE initiated a competition to obtain the services of research and development organizations and electric utilities to address the problems identified by the senior utility representatives. A government-university-utility cooperative research program was awarded to Georgia Tech and the southeastern utilities as a result of that 1982 competition. Housed within the Southeast Photovoltaic Residential Experiment Station, operated by the Florida Solar Energy Center, the program of research on integrating photovoltaic power into utility grids and operations is being conducted cooperatively by Georgia Tech and the Alabama Solar Energy Center, who are the research groups working with the utilities, and the Utilities Research group whose function is to identify potential problems and oversee the research. The utilities that comprise this group are:

- TVA
- Georgia Power Company
- Alabama Power Company
- Southern Company
- Florida Power Corp.
- Florida Power and Light Co.
- Jacksonville Electric

Let me note the unique nature of this cooperative venture. The Utilities Research Group is active and involved. Each of the research activities is truly a cooperative effort involving the research organizations and the several utilities.

Status of Research

Underway

The major research activity currently being conducted is that investigating harmonics injection and propagation -- in which issues of power quality are being addressed experimentally. To date, this field research has been conducted jointly by Georgia Tech and Georgia Power Company. The equipment is now being moved to the Alabama Solar Energy where the testing will be continued by the Alabama Solar Energy Center in conjunction with the Alabama Power Company and TVA.

Waiting to Start

Within the overall DOE/Sandia Program, two topics of priority interest to utilities are soon to begin:

1. Islanding and fault protection -- which is to resolve issues of personnel safety, equipment protection and service reliability, in situations where photovoltaic powered houses become separated from the utility distribution lines that service them. In situtations such as these, problems of safety of personnel and equipment could be severe, and both operational techniques and specialized equipment features are needed.

2. Distribution automation -- to assess the impact of photovoltaics on future utility automated control systems. This work, to be conducted jointly with the Oak Ridge National Laboratories and the Athens (Tenn.) Utility Board, will address the operational and equipment problems potentially imposed on the new generation of automated distribution control systems when photovoltaics, and other distributed source

generation equipments, come on line within the territories serviced by these new automated systems.

Cost Share

The program of research that we at Georgia Tech are conducting jointly with the utilities of the southeast and the Alabama Solar Energy Center is being conducted under a cost share arrangement. During fiscal year 1982, the Department of Energy provided funding of $266,850 for the conduct of this utility related research. Since that time, the utilities have provided cost share funding of:

FY1983 -- $421,500

FY1984 -- $422,500

In addition, Georgia Tech and the Alabama Solar Energy Center have provided cost share funding of:

FY1983 -- $125,000

FY1984 -- $ 57,000

Clearly, reflecting our commitment to this program, the utilities, and we at the cooperating research centers, have provided a substantial cost share against the funds provided to us by the Department of Energy.

Overall DOE/Sandia Program on PV-Utility Integration

I want to broaden my presentation at this point to speak of the overall program at Sandia into which our work has become integrated.

Utilities Research Group -- Georgia Tech

Our program was the first and it is characterized by the joint planning being performed by ourselves and our cooperating utilities and the joint conduct of experiments. Our program is integrated with the overall experimental program at the Southeast Residential Experiment Station, and is cost shared.

Four Regional Utilities

Sandia is currently contracting with four regional utilities to broaden the geographic base of the investigation of photovoltaic-utility integration issues. Four utilities have been selected to identify issues of importance to them, and plan experiments to assess the full nature of these issues under field conditions. These four utilities will also be called upon to cost share their work.

Supporting Research

A number of projects have been sponsored by the Sandia National Laboratories which have become supporting to the photovoltaic-utility integration work. In particular, I want to note the unique and necessary experimental work on power conditioning units being conducted at Sandia. In addition, Arizona State University has assessed cloud dynamics, as they affect photovoltaic power generation, and system models of PV integration into utility grids have been prepared by the University of Texas and Purdue University.

Our Request of Congress

At this point, speaking from the perspective of the Georgia Tech program with the southeastern utilities and looking towards the broader DOE/Sandia program, I have two requests to make:

- provide adequate FY85 funding for system engineering --balance of system research on utility-focused technology -- to continue to support the DOE share of the research program responsive to utility concerns;
- provide specific language directing continued research on a photovoltaic frontier -- integrating photovoltaic power into utility grids and operations -- for FY85 funding.

In particular, we suggest the following budget and language be inserted into the DOE Photovoltaics Program:

> "In systems engineering and standards, balance of systems research on utility integration technology should continue under the technical guidance of Sandia National Laboratories. The Committee recommends that $3.5 million be allocatd for this utility focused research in conjunction with complimentary research on array technology."

FUSION ENERGY RESEARCH PROGRAM

PREPARED STATEMENT

Chairman HATFIELD. Next is Mr. Stephen O. Dean.

Is Mr. Dean present? [No response.]

If not, his statement will be incorporated in the record at this point.

[The statement follows:]

STATEMENT OF DR. STEPHEN O. DEAN, PRESIDENT, FUSION POWER ASSOCIATES

It is a pleasure to have the opportunity to address your subcommittee as you consider the Department of Energy's fiscal year 1985 funding request for fusion energy development.

Fusion Power Associates is a nonprofit corporation established in 1979 to insure the timely development and acceptance of fusion as a socially, environmentally, and economically attractive source of energy. Forty-six industries, utilities, and universities and over 400 individuals are currently members or affiliates of Fusion Power Associates.

The board of directors of Fusion Power Associates has recently reviewed the present status of fusion development and urges that fusion energy development be based upon the following recommended policies: The expeditious development of practical fusion power should receive high national and international priority; the engineering aspects of fusion development require substantial additional effort now; and commitments to new and improved experimental facilities are urgently needed to insure continued program momentum and progress into the 1990's.

Progress in fusion energy development requires the periodic initiation of facilities which incorporate and take advantage of advancing state-of-the-art knowledge. Such facilities are characterized by improved values of performance parameters such as total fusion energy released and power density. Congress should approve commitments to such facilities on a timely basis.

Although the requirements for commercially attractive fusion systems cannot be specified precisely at this early date, the need for improvements in present concepts is evident. Reactor embodiments of fusion concepts based on present science and technology would not be commercially competitive today. This situation is not at all surprising in light of the fact that fusion energy is still in a comparatively early stage of development. However, it does require continued attention to the search for more cost-effective fusion concept embodiments.

I believe that the DOE's magnetic fusion program represents a reasonably balanced effort among the various disciplines and concepts required for fusion development.

I am, however, deeply concerned with the Department of Energy's fiscal year 1985 budget request for inertial confinement fusion (ICF). For several years now the Department has systematically reduced their requests for operating funds in this program relative to prior years. Only the foresight and vision of the Congress, which has regularly added money to the DOE request, has kept us from losing considerable numbers of talented scientists from this very productive program.

The people working in this program have constructed and operated laser and particle beam facilities at power and energy levels which seemed impossible 15 years ago. They have extended our understanding of the interactions of intense laser and particle beams with matter. In the process, important additional benefits have been spawned, including the new field of laser isotope separation, studies of weapons-related phenomena and direct energy beam weapons technology.

In light of the outstanding record of accomplishments established by workers in this field, it is incredible to me to witness the short-sighted budget cutbacks imposed on this program within a DOE defense budget which is expanding enormously.

I urge the Congress to continue to provide the support necessary to maintain momentum, progress, and enthusiasm within the inertial confinement fusion program.

I also urge the committee to maintain an interest in the civilian applications of inertial fusion, which I believe remains promising. The board of directors of Fusion Power Associates has issued the following statement of views on the subject: "Inertial confinement fusion—Energy applications. There have been considerable pressures exerted on ICF program managers to downplay studies aimed at energy applications of inertial fusion. Fusion Power Associates believes that to respond to these pressures by reducing the minimal ongoing studies of potential energy applications of ICF is not in the national interest. Military research and development has historically led to many important contributions to the civilian sector and to the economy. Government sponsors should be proud of, and encourage, these connections. Permitting a reasonable percentage of the ICF funding to continue to be spent on energy applications is the best way to insure that the Nation ultimately derives full benefit from the ICF program."

INERTIAL CONFINEMENT FUSION PROGRAM

STATEMENT OF ALEXANDER J. GLASS, PRESIDENT, KMS FUSION, INC.

Chairman HATFIELD. Dr. Alexander Glass.

Mr. GLASS. Good morning, Senator.

Chairman HATFIELD. Good morning, Dr. Glass. It is good to have you here. If you would like to submit your full statement for the record, we will incorporate it in the record and you may proceed to highlight or summarize your testimony.

Mr. GLASS. Thank you very much. I am very appreciative of the opportunity to appear here this morning. I would like to recapitulate the main portions of my written testimony.

Fusion is the process that I think is well known to this committee, it is the source that generates the Sun's radiant energy and which gives the hydrogen bomb its awesome power. Since World War II scientists around the world have tried to harness this source of energy for production. There are two primary approaches to fusion, one ——— and the other inertial, and it is in the latter program that research is active.

The inertial fusion approach primarily involves the use of large lasers to compress the heat matter to the point where a nuclear reaction can occur. Congress has supported the inertial fusion program for over a decade. For the near objective, in the near term, for its application to the nuclear weapons program in approaching the understanding of the physics of ——— and in the long term as a potential source of energy. Expenditures will exceed $1.5 billion for this program. In 1984 the operating budget for inertial fusion was $145 million; in 1985 the administration has proposed a lower figure than that.

I know you are familiar with the program overall. I thought I would just concentrate on a few specifics having to do with the role of a private expenditure in the program and then return at the end to a comment on the budget.

We are one of six laboratories in the United States pursuing this and we are the only private participant. Our company employs about 160 people at our facility at Ann Arbor, Mich. KMS Fusion was a pioneer in this program. In fact, 10 years ago today, or roughly 10 years ago on May 1, 1974, the first successful laboratory demonstration called laser fusion was carried out by KMS Fusion in Ann Arbor and since then the company has contributed many other innovative firsts to the program. We are what is designated within the program as a support laboratory. We operate a large glass laser system and our work is closely coordinated with work at the large Livermore National Laboratory and with the University of Rochester and the Naval Research Laboratory.

We are also a primary source of fuel containers or experimental targets, the tiny glass or plastic shells that are used to contain the hydrogen fuel, and we supply these not only to the other glass laboratories that I just mentioned, but also to the Los Alamos National Laboratory, and even on occasion to the Sandia Laboratory. We also have a small commercial business selling laser fusion target components in Europe.

In recent years our experimental program has concentrated on the kilojoule and understanding of the complicated physical processes which take place inside these tiny microscopic targets when they are irradiated with the laser. This has worked as to sophisticated fabrication techniques. We again have been cooperating closely with the other laboratories in the program and the information that comes out of our experiments is fed directly into the other laboratories and has a direct impact on the design and impact of larger facilities.

We have a unique responsibility within the program and we are always on the lookout for opportunities for commercialization. Major fusion is a long pull which has been underway for 10 years and will be underway for many more years. It is incumbent on us to look for benefits to society along the way. This year we are marketing three new products which are directly spinoffs from work done in the inertial fusion program.

We are marketing a novel new shockwave detector which was developed in connection with the Los Alamos Laboratory. We are marketing a video multiplexor which is a device for hard copy printers from a number of video terminals. In a very exciting transfer of technology from laser fusion to latter technology, we have developed a glass shell on which living cells can be grown which are also being commercialized.

In addition to these commercial benefits the facilities developed under the inertial fusion program such as our own have been very useful for other Government programs. In the last year we were the site of x ray laser experiments that were carried out by the team of researchers involving scientists from the large Livermore National Laboratory, the Naval Research Laboratory in Washington, Imperial College in London, and our own technical staff, and these experiments provided critical stetroscopic data that are going to be paramount for x ray laser to be conducted later this year and next year in Nova facilities at the Lawrence Livermore Laboratory.

The inertial fusion program has over the last few years invested in the NOVA facility at the Livermore Laboratory and at Los Alamos and the facility at Albuquerque. Our work and the work of the other support laboratories is designed to target technology, physics data, diagnostic instrumentation, and to maximize the cost effectiveness of these large facilities. An example of the utility of these smaller facilities within the program is demonstrated by the use of our facility in the x ray laser experiments.

Large facilities are expensive to build and they are costly to operate and it is important that we get the maximum use out of it, and this utility is greatly enhanced by the activities of the support laboratories in providing flexible logistical support.

In summary, then, I feel the inertial fusion program has been making great progress. We have made great strides. We can ignite the small thermal nuclear fuel mass with the laser. Once the goal is reached we look forward to twofold application, one in the area of weapons physics and the other in the area of a potential energy source. We feel this is not a time to cut the program. We have a steady stream of accomplishments that is coming out now that new facilities are coming on line which will provide us access to a new realm of physics, a thorough scientific understanding of what is in the laser and that major advances in technology, both the targets and of diagnostics, are greatly speeding up the rate of scientific understanding in the program. There are spinoffs from the programs and there are benefits—availability of the facilities and the talents developed under the funding for inertial fusion.

We are grateful for the continuing support of this committee and we ask your assistance in maintaining the health of this program at a critical time.

Chairman HATFIELD. Thank you, Mr. Glass.

Mr. GLASS. Thank you.

[The statement follows:]

STATEMENT OF ALEXANDER J. GLASS, PRESIDENT, KMS FUSION, INC.

SUMMARY

The 1985 Administration budget calls for a reduction in funding for all elements of the Inertial Confinement Fusion program. We feel that with major new facilities starting operation, and critical experiments scheduled in the next few years, these budget reductions are counter-productive, and will slow down the pace at which vital information will be obtained. We request an increase in funding for KMS Fusion, to the level of $14 million in FY 85 operating funds. This figure is less than the amount authorized for 1984. This modest increase will enable us to accelerate our efforts to acquire both the physics data base and the requisite target fabrication technology needed to make more cost effective use of the major facilities available to the ICF program.

The Inertial Fusion Program

Fusion is the process which generates the sun's radiant energy, and which gives the hydrogen bomb its awesome power. In fusion, the fuel, consisting of the heavy isotopes of hydrogen, called deuterium and tritium, is heated to a temperature of 100 million degrees, hotter than the sun's interior. At this temperature, the hydrogen nuclei fuse together to form helium, with an attendant release of energy. The fuel must be confined, i.e., held together long enough so that the energy released exceeds the energy invested to heat the fuel to the reaction temperature.

Inertial Confinement Fusion (ICF) is one approach to confining and heating fusion fuel. Energy from a powerful laser or particle beam is concentrated on a spherical shell containing the fuel. The fuel is heated and compressed in the process, until thermonuclear conditions are achieved at the center, igniting the fusion reaction. The surrounding compressed fuel is then ignited by a propagating thermonuclear burn wave, releasing energy from the fusion reaction.

Inertial Fusion research has been supported by the Congress for over a decade, with two objectives. In the near term, the ICF program provides information about thermonuclear physics which is of vital importance to the nuclear weapons program. In the long term, ICF is viewed as an alternative path to harnessing fusion as a source of energy. In the Department of Energy, the ICF program is administered by the Office of Inertial Fusion, under the overall direction of the Assistant Secretary for Defense Programs.

For the past five years, three major facilities have been under construction in the ICF program. Each represents a different technological approach to driving the inertial fusion process. The **Antares** laser, a 40 kilojoule, carbon dioxide laser at the Los Alamos National Laboratory, started operation in 1984. **Nova**, a 100 kilojoule glass laser, will commence operation at the Lawrence Livermore National Laboratory early in 1985. **PBFA-II**, a light-ion beam facility at the Sandia National Laboratory, is scheduled to start operation in 1986. These facilities, along with other activities in the ICF program, will provide the information needed to assess the scientific feasibility of inertial fusion late in this decade. The Department of Energy has scheduled a critical review of the ICF program in 1986-87.

The Nova Project

In 1979, the Department of Energy approved the construction of the Nova laser at LLNL. Nova was originally conceived as a 20-beam, neodymium-glass laser, capable of generating 200-300 kilojoules of infrared light in three-billionths of a second (3 nanoseconds). However, DOE only approved construction of a ten-beam system, designed to produce 100 kilojoules of infrared light, but with frequency conversion capability, to convert the output to visible light. The total project cost for Nova is approximately $176 Million.

There are two basic approaches to driving an inertial fusion target. The laser light can impinge directly on the target (direct drive), or can be converted to x-rays in an enclosure ("hohlraum") containing the fuel mass, and the x-rays used to drive the target (radiation drive). Radiation-driven targets offer better uniformity of illumination than direct-drive targets, but sacrifice efficiency at lower laser energies. Both approaches are currently under investigation in the ICF program. Nova experiments will emphasize the radiation-drive approach.

In order to ignite the fusion reaction, it is necessary to heat the fuel to 100 million degrees, and to compress it to 1000 times the density of liquid hydrogen (1000 x L.D.). Nova experiments are unlikely to achieve both conditions simultaneously. However, it is expected that targets will be compressed to 500 x L.D. in the first year of Nova's operation, at a temperature lower than that required for ignition. Subsequent Nova experiments are expected to achieve 1000 x L.D., at sub-ignition temperatures. Data from the Nova experiments, taken together with information obtained from other sources in the program, will define the driver and target requirements for both ignition and high-gain targets. These experiments will thus provide critical and valuable data for the ICF program, data which will provide the basis for evaluating the applicability of ICF to both its military and energy objectives.

The Role of KMS Fusion

KMS Fusion is a private company, located in Ann Arbor, Michigan, and is the only private participant in the ICF program. In 1979, KMS Fusion was designated as a support laboratory for glass laser experiments. Its efforts are closely coordinated with the program of the lead laboratory for glass laser experiments, LLNL. Cooperation among the laboratories in the program is fostered under this arrangement. Since 1980, in recognition of the high value of the Nova experiments, KMS Fusion has directed its efforts to support the Nova objectives.

KMS Fusion has played a major role in the development of inertial fusion. The company began fusion research in 1971. Ten years ago, the world's first successful demonstration of laser-produced thermonuclear reactions took place at KMS Fusion's laboratory, in Ann Arbor, Michigan. Since then, the company has contributed many other innovative "firsts" to the program. KMS Fusion was the first to carry out experiments with short wavelength light, a technique which has been subsequently adopted world-wide. The company pioneered the use of frozen (cryogenic) fuel in ICF targets, a complex technique generally acknowledged to lead to improved target performance. Until 1983, when LLNL conducted its first cryogenic target series, KMS Fusion was the only laboratory in the world to carry out cryogenic experiments. KMSF scientists had demonstrated, in 1981, that cryogenic targets perform better than gas-filled targets. Most recently, in 1983, the company developed a multi-frame holographic interferometer for visualizing the evolution of material above the surface of a target. This instrument is capable of providing stop-motion images in a fifty-billionth of a second. Up to four such images can be recorded during each experiment, which lasts less than a billionth of a second.

The company is a major supplier of targets and target components within the ICF program. The target fabrication effort comprises roughly half of the company's activities. This effort supports the internal research program at KMS Fusion, and also produces target materials and components for the other participants in the program. Several European laboratories also buy the sub-millimeter-sized glass Microshell® fuel containers that KMS Fusion has developed for fusion use. In addition to target fabrication, the company is pursuing long-term research to develop the large targets needed for the critical experiments to be performed on Nova. These targets involve several techniques and technologies developed at KMS Fusion, including cryogenic fuel, and various new target materials.

In addition to the company's efforts in materials science and target fabrication, KMS Fusion operates a highly productive experimental facility, the Chroma laser. Chroma is a two-beam laser, capable of producing up to 800 Joules of infrared light in a pulse of one billionth of a second duration. This energy can be efficiently converted to visible light, which couples more effectively to the fusion target. The laser is equipped with a pulse stacker, which allows us to synthesize pulses of arbitrary temporal shape, an important parameter for optimal target compression.

The Chroma laser is outfitted with two experimental areas. This allows us to carry out one set of experiments, while setting up another experimental configuration. At present, one experimental area is devoted to a unique optical system, devised and patented by KMS Fusion, which enables us to illuminate a target uniformly from all directions, with the light from the two beams of Chroma. Either gas-filled or cryogenic targets can be imploded in this target chamber, with either infrared or visible light. The second experimental area is used to explore the physics of radiation-driven targets. KMS Fusion is the only laboratory in the U.S. today actively exploring both directly driven and radiation-driven laser fusion targets.

Since 1980, the company has placed heavy emphasis on improving and developing its capability to detect and measure the complicated phenomena which occur within a fusion target. In any given experiment, it is necessary to measure effects on a spatial scale of hundredths of a millimeter, and a time scale of hundred-billionths of a second. The quantities measured include the density of the rapidly moving material vaporized by the incident laser energy, and the spectra of electrons, neutrons, ions, and x-rays over a wide range of energies. Today KMS Fusion has acquired the capability to measure all these quantities, simultaneously, with high accuracy. In developing our diagnostic capabilities, we have worked closely with the other laboratories in the program, especially LLNL, and gratefully acknowledge their cooperation and support.

By virtue of this increased diagnostic capability, and the flexibility and high data rate of the Chroma laser facility, KMS Fusion has become the principal source of information concerning the basic physics of radiation-driven targets in the ICF program. Over the past three years, we have conducted well over 1000 target shots on both radiation-driven and directly driven targets. These experiments have yielded basic and important information concerning the absorption of laser light by the target, the transport of energy within the target, and factors influencing the phenomenon of suprathermal electron generation, which limits target performance. These experiments have supplied data of vital importance to experiments performed on the Novette laser at LLNL, and scheduled to be conducted on Nova. A high degree of technical cooperation exists between the scientific staffs of the two laboratories, and the experimental results obtained at KMS Fusion are readily and quickly shared with the LLNL scientists as well as throughout the program. Both in target fabrication and in our experimental program, we are attempting to make the most cost-effective use of our facilities to support the near-term objective of the national program, the achievement of near-ignition conditions on Nova.

Technology Spin-Off

As the only private participant in the ICF program, KMS Fusion is the primary agent for the transfer of technology to commercial applications. Currently, KMS Fusion is marketing three commercial products which are based on technology developed within the ICF program. We have modified the tiny glass Microshell® containers, used to encapsulate fusion fuel, and have developed them for use as microcarriers for cell culture. Living cells, which produce biological materials such as vaccines, hormones, or interferon, can be grown *in vitro* on the surface of these microcarriers. Initial tests of our microcarriers have proven successful, and we are scaling up our production capability to commercial volumes.

In conjunction with scientists at LANL, we have also adapted our microshell® fuel containers for use as shockwave detectors. The tiny glass shells are filled with argon gas, and attached to the end of an optical fiber. An incident shock or pressure wave crushes the shell, causing the gas to emit a brief, intense pulse of light. This "optical pin" is currently in use in several laboratories studying shock and pressure phenomena, including LANL, KMS Fusion and other industrial laboratories.

Another product developed under the ICF program is the video multiplexer, a device which allows us to connect several video graphics terminals to a single hard-copy printer. Commercial sales of this product began early in 1984.

The availability of the facilities developed in the ICF program has provided a powerful stimulus for the investigation of x-ray lasers, both at LLNL and KMS Fusion. In 1983 and 1984, two experimental campaigns were conducted at the Chroma laser facility, involving KMS Fusion scientists working with researchers from LLNL, NRL, and Imperial College in London, England. These experiments were supported by a subcontract with LLNL, and have provided critically important spectroscopic data to guide the choice of experimental materials used in x-ray laser experiments conducted on Novette, and scheduled for the Nova facility. These investigations would not have been possible, were it not for the existing capabilities at KMS Fusion in target fabrication, diagnostic instrumentation, data analysis, and theory, as well as a high data-rate, reliable experimental facility, all of which were developed under the sponsorship of the ICF program, and company funding.

1985 Budget Request

In 1983, KMS Fusion received $10.5 Million in operating funds, approximately 7.5 percent of the program total. In 1984, operating funds for KMS Fusion were authorized at a level of $14.5 Million, but not fully appropriated. Our operating budget in 1984 is $10.8 Million, again approximately 7.5 percent of the program total. In 1985, we are requesting an increase in operating funds to the level of $14 Million, less than the amount authorized in 1984. As we stated last year before this committee, we feel that the moderate expansion of our program made possible by this budget increment will enable us to make far more effective use of our existing facilities and staff, in support of the objectives of the national ICF program, and in particular, will lead to more cost-effective use of the $176 Million Nova facility.

With added funding, we will increase our efforts in the development of critical target fabrication technologies. In the forthcoming Nova experiments, target performance will be limited by the ability to fabricate complex targets to the required specifications. We feel that this topic has not received adequate emphasis to date. Improving target performance through advances in target fabrication technology leads to more cost effective use of existing facilities. We will expand the development of polymeric materials for large fuel containers. These materials need to be strong, capable of holding fuel, and physically uniform. We need to accelerate the development of diagnostic gas fills for targets, a technique which provides characteristic signals from within the target to measure the temperature and pressure achieved in the implosion. Given our extensive experience in cryogenics, we feel it is urgent to accelerate the development of large cryogenic targets, along with techniques for characterizing the condition of the frozen fuel within the target. We have recently made the first demonstration of the formation of a homogeneous and uniform layer of liquid fuel in a large, cryogenic target. This technology is critical in the design of high-performance targets for Nova.

We cannot carry out the necessary expansion of these activities by reducing other efforts in target fabrication. We must continue to support the ongoing experimental programs in our own and other laboratories, because these are the source of the vital physics data needed to design high-performance targets. With added funding, we shall accelerate our own experimental program, with first priority given to maintaining a full schedule of experiments on radiation-driven targets. We need to expand our capability to analyze the experimental data we are generating. Both added staff and equipment are needed. Furthermore, we need to accelerate the investigation of directly-driven targets. KMS Fusion has a unique capability to carry out these experiments. Direct-drive targets may provide the best way to obtain data on ignition requirements and high density implosions, at limited laser energy. These experiments benefit from the ease of diagnostic access, and allow the early development and test of cryogenic targets, as our recent experiments have shown. Direct-drive experiments also provide an excellent test bed for physical measurements and comparison to theory, since the geometry of these experiments is essentially one-dimensional.

The University of Rochester operates the 24-beam Omega laser, which generates approximately 3 kilojoules of infrared light. To make the most cost-effective use of this facility, it should be converted to short wavelength operation, and equipped with cryogenic target capability. With added funding, KMS Fusion proposes to initiate the design and construction of a cryogenic target chamber for the Omega laser. With frequency conversion and cryogenic capabilities, it should be possible to carry out high-density target experiments, using Omega. These experiments would complement the direct-drive cryogenic experiments scheduled to be carried out at KMS Fusion late in 1984.

With added funding, we will also be able to accelerate the development of other required technologies. Diagnostic instrumentation remains an essential, and critical requirement, if we are to understand the complex phenomena which occur in a laser fusion experiment. We will develop diagnostic instrumentation on our facility, and transfer it to experiments at LLNL and elsewhere. We will also accelerate our investigations of new, cost-effective driver technology.

We are requesting a modest increase in funding for KMS Fusion in 1985, less than the amount authorized in 1984. This increment will enable us to accelerate our efforts in support of the major objectives of the national program, and will result in higher productivity in our own laboratory, and more cost-effective and timely use of the major facilities currently existing within the ICF program.

ANEUTRONIC ENERGY RESEARCH

STATEMENT OF BOGDAN C. MAGLICH, CHAIRMAN, UNITED SCIENCES, INC.

Chairman HATFIELD. Our last witness is Dr. Bogdan Maglich.

Mr. MAGLICH. Thank you, Mr. Chairman.

Chairman HATFIELD. We have your full statement. There is a vote on the floor so I will ask you to summarize. I will remain for the next 5 or 6 minutes in order to hear your summarization.

Mr. MAGLICH. Thank you, Mr. Chairman.

My name is Bogdan Maglich, director of United Sciences, Inc., formerly Fusion Energy Corp/Aneutronix, Inc., a company I formed 10 years ago to work with the development of nuclear energy process and avoid neutrons which we consider third generation. I have before me the progress report which could be called the second generation with regard to reactors.

To this date our company has spent $14 million in travel funds and we have completed four out of five research projects. As you possibly remember, Mr. Chairman, the Appropriations Committee, this subcommittee, on June 16 has entered a text stating that:

> To date, basic research in the fields of nuclear fission and fusion has largely overlooked the potential for aneutronic nuclear alternatives using light metals such as lithium, which produce no radioactive side effects. The committee recommends the Department give higher priority to this nonradioactive and nonproliferatory nuclear potential.

At the appropriation conference, held on June 29, 1983, the following provision was agreed upon:

> The conferees agree that the administration shall consider including funding in the fiscal year 1985 budget submission for aneutronic fusion activities, for consideration by the Congress.

On July 19, 1983, Dr. Alvin W. Trivelpiece, Director of the Office of Energy Research, U.S. Department of Energy, wrote to me:

> The Department of Energy intends to make every effort to follow the conferees' suggested course of action and to give due consideration to future funding of aneutronic energy, based upon an evaluation of all the available evidence.

However, to my disappointment, the DOE 1985 budget does not allocate a single dollar to aneutronic energy research.

The DOE's development of new nuclear energy sources is totally committed to demonstrating the highly neutronic DT fusion with one technology, the Tokamak. Unfortunately, the DT fusion is burdened, to a varying degree, with all the problems of the fission reactors: radioactive waste, weapon proliferation potential, large size, large shielding, large heat pollution, and enormous cost.

The atomic energy processes that release energy, we doubt using radioactive fuels in it, have been discovered 52 years ago in Cambridge, England, by Cockroft and Walton. They bombarded the lithium nucleus with protons and split it into two helium nuclei with a release of a large amount of energy. The energy released per fuel weight was twice as much as that released in the fission of uranium.

However, the process was pushed aside for 50 years because there was no way to have a bomb, there was no way that it was believed that it could not have chain reaction and, therefore, that there was no nuclear interest. Our group has picked it up 10 years ago and we have developed to the point now that we are entering the last stage of our research stage whereby the reactor conditions then of any electronic fuel reach whereby so-called energy breakeven could be expected.

The advantages of something that cannot proliferate nuclear weapons, that does not have nuclear waste and radioactive fuel, I would just remind you, Mr. Chairman, that this involves, therefore, a small lightweight nuclear reactor next to which man can stand just shielded by infrared becomes possible and, therefore, use of nuclear power in airborne applications would become feasible.

So summing up then, the aneutronic nuclear processes release more energy per fuel weight then nuclear fission, yet they are nonradioactive; they are accident-proof; they are proliferation-proof, cannot breed nuclear weapons; much reduced source of heat rejection to the environment, compared with oil, coal, or conventional nuclear plants because of direct conversion of energy; they are suitable for small size power plants but mass produced units could be stacked into any size plant; and they are projected to have low capital and fuel cost.

Utilities find DT fusion unacceptable for powerplants and are against the early construction of DT fusion reactors. E.L. Draper of Gulf States Utilities states:

> Their construction will discourage development of advanced fuel cycle (aneutronic) fusion devices which offer more promise for widespread practical application.

So our research has now reached the state where we require more funding and more resources than could be obtained from Wall Street in the private sector which was, so far the source of our $14 million. We respectfully request this subcommittee to add on $1.5 million for additional studies in the DOE appropriation for fiscal year 1985.

I may add that among the recent technology used at MIT as reported in an article by Professor Lidsky who concluded even if it is true the program produces a reactor, nobody would want it but his conclusion is:

> If * * * confusion is to take the long view ignored in the fission program, neutron-free fusion is a quintessential example of the highest area of physics that might also provide a good answer to an engineering problem.

So on a personal level, I came to the U.S.A. 28 years ago from Yugoslavia as an MIT student and ever since that time I have pursued my belief, which has become firmer every day, that this country is a country of opportunities for developing for someone who wants to develop new things and new approaches and the support I received last summer from both the Congress and Senate further justifies my belief that our approach to nuclear energy activity is widely accepted.

Chairman HATFIELD. Thank you, Mr. Maglich.

I am going to have to stop you at that point because within 3 minutes this vote will end and I must go to the Capitol. We will include your full statement and study it for the record. We appreciate very much your coming here today. Thank you very much.

Mr. MAGLICH. Thank you.

[The statement follows:]

STATEMENT OF DR. BOGDAN C. MAGLICH, CHAIRMAN, UNITED SCIENCES, INC.

The Report on the "Energy & Water Development Appropriation Bill, 1984" of June 16, 1983 states:

> "To date, basic research in the fields of nuclear fission and fusion has largely overlooked the potential for aneutronic nuclear alternatives using light metals such as lithium, which produce no radioactive side-effects. The Committee recommends the Department give higher priority to this nonradioactive and nonproliferatory nuclear potential. The Department should allocate funds necessary to conduct a feasibility study to test the conditions necessary to produce a prototype aneutronic reactor, and to fully examine the theoretical principles of self-sustaining aneutronic energy." (98th congress, Senate Rep. No. 98-153, June 16, 1983).

At the Appropriation Conference, held on June 29, 1983 the following provision was agreed upon:

> "The Conferees agree that the administration shall consider including funding in the FY 1985 budget submission for aneutronic fusion activities, for consideration by the Congress." (98th Congress, H.R. Report No. 98-272, June 28, 1983).

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However, the DOE 1985 budget does not allocate a single dollar to aneutronic energy research.

The DOE's development of new nuclear energy sources is totally commited to demonstrating the highly neutronic DT fusion with one technology, the TOKAMAK. (D and T denote the fuel, a mixture of deuterium and tritium; TOKAMAK is a Russian acronym for a donut shaped chamber). The DT fusion research has made great progress over the past 30 years and the DOE's policy is to keep up the momentum by not allowing diversion of any funds from it to the competing ideas, even if these newer ideas are better. The concept of a Tokamak-based 'crash' program does not originate in USA but in USSR and dates back to 1973. However, the Soviet government killed its Tokamak program in 1975 and we started ours unbeknowingly in 1976, in a belief that it will be done in collaboration with the Russians. Unfortunately, the DT fusion is burdened, to a varying degree, with all the problems of the fission reactors: radioactive waste, weapon proliferaction potential, large size, large shielding, large heat pollution and enormous cost.

It has been said that discovery of an important need was almost as great a contribution as the invention itself. Whoever examines the scientific causes underlying the environmental, political and economic problems of nuclear energy, both fission and fusion, would undoubtedly conclude that what the society needs is nuclear energy without neutrons. We will refer to it as 'aneutronic' nuclear energy.

If one could design an aneutronic nuclear power reactor, such a reactor could never harm a human. If there is aneutronic nuclear fuel, it can never be converted into nuclear weapons. Neutrons, essential for nuclear weapons, are atomic-age villains in civilian applications of nuclear energy. They convert natural uranium into the atomic weapon fuel, plutonium. They can penetrate up to 15 feet of steel and cause structural damage in the toughest of materials, make them radioactive, brittle and accident prone. Present day reactors must be enclosed by thick, concrete shielding, many times the weight of the reactor itself; thus, conventional fission plants are large, uneconomical and therefore unsuitable for decentralized use. They also would not be feasible for mobile or airborne use.

Without neutrons, nuclear explosion or even a 'runaway' accident are not possible; massive shielding is unnecessary; the ability to breed and proliferate nuclear weapons does not exist; there is a potential to produce electricity directly, without heat; and a small, compact lightweight reactor system becomes conceivable.

The existence of aneutronic nuclear reactions, has been known for 52 years, but, mainly because of the lack of miliatry interest, no major effort was made to overcome technical problems which stood in the way of utilizing them as power sources. These reactions are initiated by protons and it was believed that there could be no proton chain reaction-thus, no bomb. The first aneutronic reaction was discovered by Cockroft and Walton in 1932 in Cambridge, England. They bombarded the lithium nucleus with protons and split it into two helium nuclei with a release of a large amount of energy. The energy released per fuel weight was twice as much as that released in the fission of uranium.

The aneutronic reactions can be described as the "splitting of light nuclei by light nuclei", or simply "light fission". The metals used are lithium, beryllium and boron (mined as 'borax'). The process is different from either fission or DT fusion, but since they have more similarities with fusion, they have been called (wrongly) advanced-fuel fusion.

In 1966, Rand McNally has shown that proton chain reactions are possible.

United Sciences Inc., was founded in 1972 (as Fusion Energy Corp.,) to pursue aneutronic research. To date $14 million of private funds have been spent.

The research program is being carried out at the Aneutronic Energy laboratory of United Sciences at Princeton, NJ, in association with a research consortium consisting of Polytechnic Institute of New York, University of Buenos Aires and the University of Graz, Austria. Four laboratory models of the aneutronic reactor named "migma cell" have been built and four stages of a five-stage research and demonstration program had been completed. See Diagram of progress (next page).

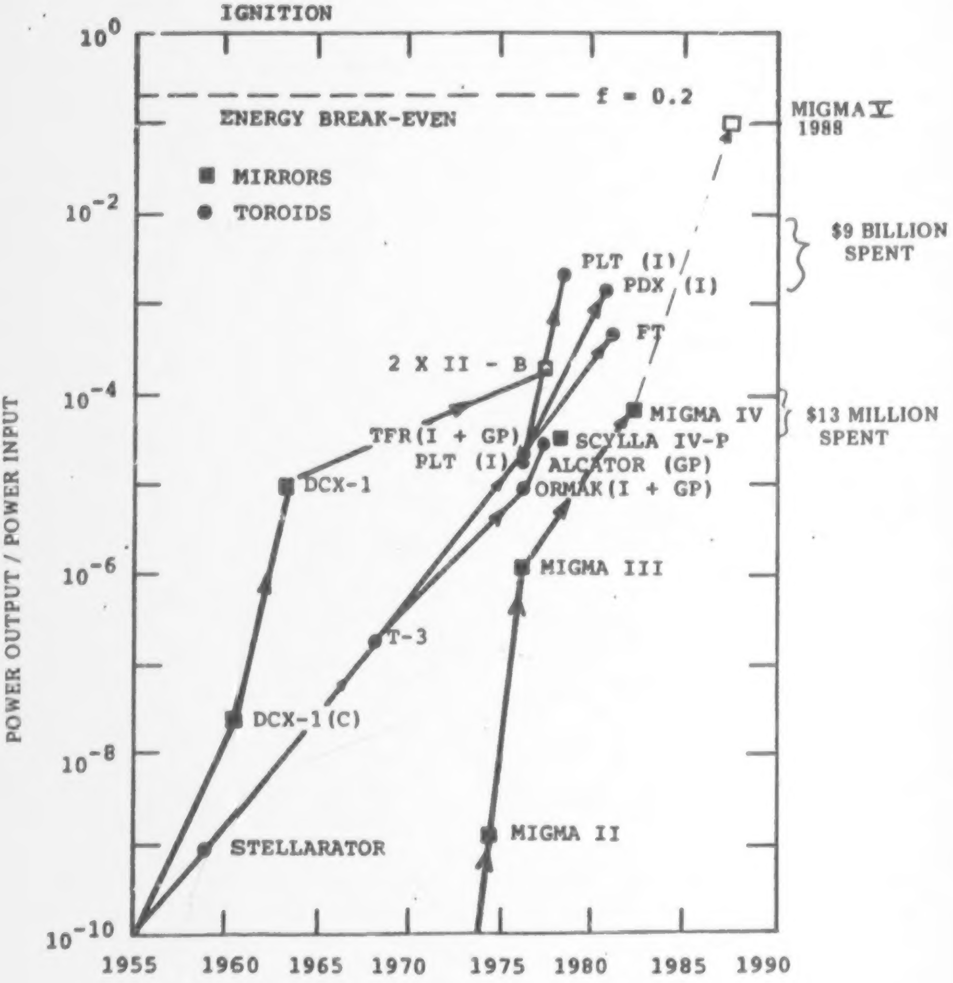
The next--and the last--research stage, Stage 5, will bring migma into ~~enter~~ the reactor regime i.e. reach or exceed the energy breakeven conditions. It is a 4 year $30 million program. However, if we could use the newly built prototype RFQ accelerator at Los Alamos, it would become a $10 million 2-year program. Prior to embarking into the last stage experiment, we need a one to two-year teoretical and experimental feasibility study program which would cost $1.5 - $2 million/year.

We respectfully request the subcommittee to add-on $1.5 million for aneutronic energy theoretical and experimental feasibility studies to the DOE appropriation for FY 1985.

Summing up the aneutronic nuclear processes release more energy per fuel weight than nuclear fission, yet they are:

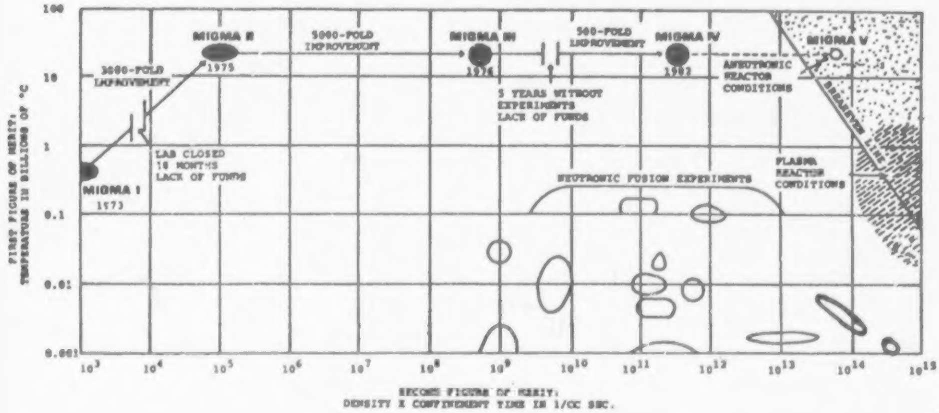
- non-radioactive
- accident-proof
- proliferation-proof -- cannot breed nuclear weapons
- much reduced source of heat rejection to the environment, compared with oil, coal or conventional nuclear plants -- because of direct conversion of energy
- suitable for small size power plants (mass produced units could be stacked into any size plant)
- projected to have low capital and fuel cost

Since radioactivity, runaway-accidents, waste disposal, weapon proliferation potential, heat pollution, large plant size, high capital and fuel cost have been the main areas of controversy for nuclear fission plants being used today, as well as the potential nuclear fusion plants of the current governmental research programs, aneutronic energy offers a radically alternative form of nuclear power. The U.S. utilites find DT fusion unacceptable for power plants and are against the early construction of DT fusion reactors. States E.L. Draper of Gulf States Utilities: "their construction will discourage development of advanced fuel cycle (aneutronic) fusion devices which offer more promise for widespread practical application". (Bull. American Physical Society, Washington Meeting, 1984).



PROGRESS OF DT FUSION VS. ANEUTRONIC

Comparative Progress of Migma (Aneutronic) Experiments (1973-82)
with Current Status of Neutronic Fusion Experiments



There are two generally accepted 'criteria of merit' used to measure progress toward proof-of-principle in nuclear fusion experiments, both neutronic and aneutronic.

The horizontal axis shows ion confinement densities (how compressed the fuel is) multiplied by time of confinement (how long the compressed fuel can be held together).

The vertical axis shows temperature in degrees Celsius. In the case of neutronic fusion experiments, the temperature is typically hundreds of millions of degrees Celsius, but in the case of Migma (aneutronic) research, the typical temperature is two orders of magnitude higher (tens of billions of degrees Celsius).

While Migma achieved its needed temperature goal equivalent to the Migma II experiment in 1975 (30 billion degrees Celsius equivalent), its further goals had still to be reached on the horizontal axis (density x confinement time) and the progress to date is noted.

Net energy production is projected for conditions to the right of the Breakeven Line.

The Migma V experiment - the last stage - is to increase the product another 100 times. This would put migma into the energy producing regime, thus demonstrating scientific feasibility of aneutronic nuclear energy.

ADDITIONAL PREPARED STATEMENTS

Chairman HATFIELD. The record will also remain open so any additional statements on Federal energy research programs can be included.

[The statements follow:]

STATEMENT OF THE EDISON ELECTRIC INSTITUTE, AMERICAN NUCLEAR ENERGY COUNCIL, AND UTILITY NUCLEAR WASTE MANAGEMENT GROUP

This statement is provided on behalf of the Edison Electric Institute (EEI), the American Nuclear Energy Council (ANEC), and the Utility Nuclear Waste Management Group (UNWMG). EEI is the association of investor-owned electric utility companies and its members generate about 76 percent of the electricity in the United States. ANEC represents over 100 organizations having an interest in nuclear power, including private, public and cooperatively-owned utilities, manufacturers, architect-engineers, and various firms in the nuclear fuel cycle. UNWMG is a specific activity that is funded by forty-two utilities with nuclear programs, including EEI member companies, public utilities, and cooperatively-owned utilities with the sole objective of assisting in the resolution of spent fuel storage and nuclear waste disposal issues.

Recent Facts on Nuclear Energy and Electricity Demand

First, we would like to present some specific facts that provide a balanced view on the past performance and future productive potential of commercial nuclear energy in the United States as a necessary and essential part of this nation's energy picture.

Despite the recent publicity concerning problems being encountered at several nuclear power plants, nuclear energy in the United States is a productive technology. Last year, some 13 percent of the nation's electricity was generated by nuclear energy plants. In ten years we estimate the national figure to reach about 20 percent, with nuclear energy being second only to coal in serving the nation's essential electricity generation.

We have 76 nuclear reactors in commercial operation--more than any other nation in the world. Six others are in the start-up phase of operation. An additional 41 units have construction permits with scheduled completion dates.

In 1984, as many as 15 of these 41 units could be ready for operating licenses. Several of these probably will slip over into 1985 before their licenses are obtained. The other 26 units have scheduled completion dates extending from 1985 through 1990.

Nuclear power has saved billions of dollars for the electric customers of this nation. If the electricity supplied by nuclear plants between 1974 and 1982 had been provided instead by coal or oil plants, consumers would have paid between $13 billion and $75 billion more, depending on the type of fuel substituted.

Twelve months ago, based on what we knew then of the recession and the likelihood of the economic recovery, the electric utility industry predicted that during 1983, electric output or sales might increase 1½ percent to 2 percent and peak demand might be 2 to 3 percent higher than 1982. However, the economic recovery was much stronger than most experts anticipated and the weather set records for both heat and cold. What actually happened was the electric output for 1983 was 3½ percent greater than for the preceding year and the peak load for the nation overall went up 7½ percent--more than double our highest earlier forecast.

Nuclear energy plants are necessary. We will need more electricity in the future to help drive our recovering economy and maintain our standard of living. Conservation, load management and renewable energy sources are essential and helpful, but, they are simply not enough. Also, we cannot rely just on coal to provide additional capacity and to replace aging facilities. We must use nuclear energy now and must put in place the necessary process to permit its expanded use. Licensing reform legislation is essential to permit both coal and uranium to be available as fuel choices in the future.

Nuclear Licensing Process Improvements - The nuclear licensing process must be changed to achieve earlier public participation, remove uncertainties in the process, provide hearings on those issues that truly affect public health and safety, encourage the use of standardized plant designs and perhaps the most important element is to create a sensible, systematic and documented approach to the imposition of backfitting. A careful examination of the licensing and regulatory system provides ample evidence that it evolved, and continues to evolve, in a largely undisciplined manner. This is inconsistent with the large and still growing number of nuclear power plants. Therefore, the primary objective of regulatory reform should be, consistent with the health and safety of the public, to eliminate the inefficiencies in the current process. Such action will assure the continued safety of the public.

As discussed earlier, our country's economy will grow, and so will the demand for more electricity. This linkage is vividly evident over the past few years. While total energy consumption in the nation has gone down, electricity consumption continues to grow in a manner that is related to economic growth. This growth can be partially accommodated by further conservation, load management and the use of renewable energy resources. But we will need new capacity and only two fuels, coal and uranium, are available for major expansion. Relying only on one of these would be foolhardy. Licensing reform is essential to permit both fuel options to be available in the future.

Several specific licensing issues are of immediate concern to us:

- One large nuclear plant will be completed and waiting for an NRC approval to load fuel this year while the Hearing Board continues its scheduled deliberation on the plant that extends several months beyond the time that an operating license is needed. This is an obvious case of a need for NRC permission to issue a temporary operating license.
- A second issue is the continued refusal of a locality and the state to cooperate in the preparation of an effective off-site emergency response plan in the vicinity of a nuclear plant. They, in effect, have achieved a veto authority over safety aspects of a nuclear power plant operation, which has been held as a Federally pre-empted authority since the passage of the Atomic Energy Act of 1954. A means is needed to

overcome the outright refusal to cooperate by a locality or a state.

- A third issue is that the NRC is taking an unusual and what appears to be an inappropriate approach to satisfy Section 306 of the Nuclear Waste Policy Act of 1982. This section of the legislation calls for greater emphasis on the training of nuclear power plant operators, and all or part of it could be satisfied with regulatory guidelines. NRC appears to be expanding on this and developing new rules and regulations for nearly all persons working at a nuclear power plant. This flies in the face of the utility industry efforts in this area. Prior to the accident at TMI-2, the NRC regulated training only for reactor operators. Then the Institute of Nuclear Power Operations (INPO), was set up by the industry with one of its primary functions to address the area of training for key nuclear plant positions. The industry, through INPO, has taken initiative in establishing training programs for other nuclear plant positions, as well as licensed operators. Considerable progress and momentum has been achieved. We believe that INPO is doing a credible job of industry self-regulation in the training area. New NRC regulations in this area could undermine the INPO/industry initiative. This appears to be a direct step of over regulation by NRC, beyond that called for in the legislation, that is a disincentive for further industry efforts of self improvement through organizations like INPO.

- Another area of critical concern is the NRC Interim Policy Regarding Investigations and Adjudicatory Proceedings. This interim policy addresses the situation where allegations have been made to the NRC about a particular plant and that plant is subject to an ongoing licensing hearing. The policy would permit the hearing boards to receive information from the OI investigators about the allegations and the status of their investigation in closed sessions without the presence of, or disclosure to, other parties to the proceeding. This policy appears to violate the rule prohibiting *ex parte* communications in the Administrative Procedure Act and the NRC's rules and appears to be inconsistent with basic due process.

- Also, in some cases the, NRC's policy and procedures for resolving allegations in nuclear power plant licensing cases are being abused in an apparent attempt to forestall or prevent timely NRC action on issuance of licenses. The situation has deteriorated to the point where the NRC licensing process appears to have become almost completely open-ended and that the NRC is incapable of making timely decisions. This situation demands immediate correction.

Nuclear Waste Disposal Program

Utilities are presently making payments to the Nuclear Waste Fund of about $25 million each month, and this will increase to about $50 million each month as the plants under construction are brought on line. The overall program will last as long as there are nuclear wastes to be disposed. Revenues from utility payments will add up to $15 to $25 billion dollars, making this program one of the, if not actually the largest civil works project ever undertaken by this country, that will extend over many decades and funded with a user fee on electricity.

Since utilities are providing essentially all of the monies for the program, amounting to several hundred million dollars each year, it behoves us to perform, on behalf of our electricity customers, some form of a watch dog function over DOE to assure that the monies are being spent effectively and efficiently. We believe that our interest is directly in line with that of Congress, to achieve the disposal of nuclear waste in a safe manner, on a timely basis, and with an efficient and effective program that allows for state and public involvement in the decision making process. We feel that by performing an effective industry overview effort, we will be better equipped to provide comments and recommendations on the nuclear waste program to Congress, the Administration, our electricity customers and our stockholders. We want to provide the funds for the program, however, we insist that proper controls be provided over its cost and that the schedule is achieved. It is vital that DOE starts taking our spent fuel in 1998.

Our industry worked closely with many Congressional committees over a period of several years to bring about the enactment of legislation that we know as the Nuclear Waste Policy Act of 1982 (the Act). The utilities are pleased to have accepted their responsibility under the Act by signing contracts with DOE and for the past several months have been providing funds to the Federal Nuclear Waste Fund. Our concern extends to whether the Congress, the Administration, DOE, the states, and all other parties, including special interest groups are upholding their part of the bargain as defined in the language, as well as the spirit, of the Act.

Many compromises were made during the development of this landmark legislation. While each one of us would have preferred legislation more to our own particular liking, we accept the legislation as passed and will work to see that it is carried out as effectively and efficiently as possible. We do not believe that any change should be made in the legislation in the near-term. Moreover, due to the legislation's complex nature, it should not be amended ad hoc, but rather only through comprehensive hearings before the relevant committees of jurisdiction.

We are concerned that there is a tendency in the Department of Energy to over-emphasize process at the expense of the schedule established by the Act. This is reflected in a recent draft of the DOE Mission Plan for the waste management program. The draft Mission Plan not only specifically places a priority on process over the schedule prescribed in the Act, but proposes to slip the schedule for achieving significant milestones. For example, the Plan proposes to delay the recommendation to Congress by the President for the first repository site from March 31, 1987--as mandated in the NWPA--to December 1990. This is a delay of almost four full years or three years based on the extension provided in the Act. This length of delay does not appear appropriate or necessary, and specific direction should be provided by Congress to minimize any such delays. Under section 114e, any Federal Agency that is unable to meet a Congressionally mandated schedule is required to report to Congress on the reasons for the delay, and to take steps to mitigate its impact.

Although we support the need to proceed through the process called for in the Act with detailed recognition of all concerns, we do not believe the schedule should be secondary. Having the first repository by 1998 is very important, and many intermediate steps must be achieved on a timely basis for this to happen. DOE should move aggressively to re-establish the schedule to match as closely as possible the dates prescribed in the Act and to reassert its determination to comply with the timetable for reaching future milestones. We will be watching this matter closely and believe that Congress should carefully monitor progress against the backdrop of the timetable as a "vital sign" of the health and condition of the program.

Also, we are concerned, about the special interest pressures that are being brought to bear on DOE to influence the direction of the program in ways other than mandated by Congress. We have observed pressures being applied on DOE to achieve preferences within its Site Selection Guidelines for certain potential host states to gain an advantage that they were unable to gain from Congress. This has resulted in a delay in the issuance of the Guidelines. Other pressures are evident by research organizations to continue the past practice of researching everything, rather than to proceed with a definitive effort to resolve problems of geologic disposal in a timely manner. Contractors are developing the primary programmatic input to the DOE offices. While the contractors are intimately involved in developing programmatic details, the utilities that are providing the funds often are denied access to such details until after the plans are in place. We believe the utility industry can make a significant contribution to the overall program by being allowed to participate early in the programmatic planning process.

Proceeding with a waste repository is the direction for the nuclear waste program that is preferred by the electric utility industry. However, we support the legislated direction to consider the need and feasibility of a monitored-retrievable storage (MRS) facility. DOE is proceeding effectively to prepare the material on the MRS concept for submittal to Congress by June of 1985 to permit Congress to determine whether an MRS facility should be incorporated in the overall nuclear waste program. The MRS concept is viewed as a parallel effort to the waste repository, and it may be advantageous to have an MRS if substantial delays are encountered with the repository program. Also, it may turn out that an MRS in conjunction with a repository is more economically attractive for the overall waste program.

We would like to comment on one additional matter pertaining to the Act. That is, the size of the program and how it should be managed. The question of whether a decentralized approach of DOE management is the proper one to control such a large project is still open. The foresight of Congress in calling for a study to review and evaluate alternative organizational structures for carrying out this enormous task was fortuitous. While the study will be completed later than originally requested, it should be a valuable input to defining the preferred type of organization to carry out this very large and difficult task. Regardless of whether the study suggests a need for a separate organization, it appears that a strong, central control project office with substantial control over field activities is needed to assure the effective and efficient control of the program.

Stability is essential for the leadership of a successful program and a strong central project control appears to be needed to satisfy all aspects, institutional, political and technical, with good coordination and still achieve a reasonable time schedule with responsible cost control. DOE must be encouraged to resist such things as individual pressures for pet projects, perceived new and better alternatives, desires to research every concern forever and the strong efforts to achieve a preferred position by all potential host states.

The Fiscal Year 1985 Budget Request indicates that DOE is planning increases in the one mill per kilowatt hour fee because of an estimated revenue shortfall. Congress, as well as ourselves, need considerably more supporting justification than is contained in the sketchy budget document before an increase should be permitted. Congress anticipated that the revenues would not match the expenses in every year by permitting the program to borrow money from the U.S. Treasury or, in the case of having excess funds, invest in Government securities. The program is to achieve full cost recovery over its life and the fee is to be determined on that basis. The self-imposed requirement of the Administration that the revenues must exceed the expenses in all early years is a burden that does not appear compatible with the legislation.

There are many other aspects of the program that could be discussed; we have touched upon only a few. In fact, we commend the Department of Energy for its substantial accomplishments during the first year of this multi-decade project.

The DOE progress includes:

- Major program changes to address the deliberate process steps of the legislation to overcome the institutional and political barriers.
- A separate Office of Civilian Radioactive Waste Management has been established within DOE and its Director reports to the Secretary.
- Seventy contracts were signed by June 30, 1983 with owners and generators of nuclear waste.
- Monies are being received into a Nuclear Waste Fund at a rate of about $25 million each month.
- Six states have been notified they have potential sites for the first repository and seventeen additional states notified regarding the second repository site.
- Siting guidelines have been prepared and submitted to NRC for concurrence.
- A draft of Volume I of the Mission Plan covering overview and current program plans has been prepared and provided to interested parties for early review and comment.
- Study and design work have been initiated for a Monitored Retrievable Storage (MRS) facility.
- Cooperative agreements have been established with three utilities for development of new on-site storage concepts for spent fuel.

While the pace of DOE efforts may be less than desired, the legislation did establish a very difficult road map and it appears that DOE has been carefully negotiating its way through the mine field for the initial steps of this program. However, the following summarizes several areas of real concern about the program. It may be appropriate to take specific initiatives to assure that they are addressed effectively.

- A permanent Director has not been nominated, and all except one person in the upper level management are designated as in an acting capacity. The assignment of top quality permanent management personnel is necessary to get the task accomplished.
- Establishment of a detailed project plan and decision schedule is essential. A definitive and detailed repository schedule has not been provided that places the necessary emphasis on the critical path items to assure the availability of a repository in 1998. DOE concedes that it will not achieve the selection of the first repository site by 1987 as called for in the Act.
- It appears that a strong, central control project office with substantial control over field activities is needed to assure the effective and efficient control of the program. Such is not the way that DOE performs its normal business activities.
- National Laboratories, academicians, consultants and contractors appear to be spending funds rapidly on time and material, open-ended arrangements. It appears desirable to urge that fixed cost contracts with incentives and penalties be pursued for a majority of the expenditures.
- States are requesting specificity in the Site Selection Guidelines in their effort to obtain a preferred position for their state. Preferences beyond that legislated in the Act must be resisted by DOE and NRC.
- Process and schedule details are provided in the Act and DOE should not place emphasis on one over the other.
- Full cost recovery for the program is essential and any change in the fee being paid into the Nuclear Waste Fund must be based on a detailed evaluation that is fully supported to achieve a balance over the complete program.

Uranium Enrichment

Uranium enrichment services, in the form of separative work units (SWU) are purchased by electric utilities as a necessary part of the nuclear fuel cycle to increase the percentage of the fissionable uranium isotope, U-235, from its natural concentration of 0.711% to approximately 3-5% for use in the typical light-water reactor. Up until about ten years ago, the United States Government held a virtual world-wide monopoly in the market for uranium enrichment services provided to non-communist countries. However, for a number of reasons, including Congressional and Administration actions, the non-U.S. market share held by DOE has dropped, over the past decade, to about 35 percent. The original U.S. contracts for enrichment services (Requirements Contracts) were market-oriented and permitted the customers to purchase the service as it was needed. These contracts, while still in effect for those utilities that hold them, were not offered after December 1972. In September 1973, the Long-Term, Fixed-Commitment contracts were offered as the only type of contract available from the U.S. Government. These contracts, as the name implies, were take-or-pay arrangements that forced the customer to purchase services, based on a ten-year advance projection that could not anticipate what would occur, whether or not the enrichment services would be needed to fuel the operating plants. Many of these contracts were taken by utilities because they had no alternative source. Later, foreign competition, in the form of two European consortia (Eurodif and Urenco), was developed with similar contractual arrangements. An attempt was made in 1975, by the U.S. Government, to correct the obvious imbalance between contracted supply and actual demand by offering a short "open season" to allow adjustments to contracted deliveries. Most utilities availed themselves of this opportunity, but the overall effect was not sufficient to correct the market imbalance. Therefore, in May 1978, the Adjustable, Fixed-Commitment contract was offered, which allowed some flexibility. Even these contracts resulted in electric utilities having to purchase unneeded enrichment services under take-or-pay arrangements. Any excess costs associated with these take-or-pay arrangements are borne by the electric utility customer in the cost of nuclear fuel.

As a result of this forced imbalance in the market, a large surplus of enriched uranium came about in the United States and overseas. Since there is only one use for low-enriched uranium, that is to produce electricity in power reactors, at some time a market correction was going to come about. This happened in earnest during the past couple of years by a combination of contract terminations by the customers holding the originally offered Requirements Contracts and their subsequent purchase, largely from foreign sources and at a discount, of enrichment services from those customers holding the take-or-pay contracts. This was a natural market correction that was outside of the control of the producers and DOE was faced with major revenue losses.

About one-half of DOE's enrichment contracts permit terminations such that customers can purchase SWUs elsewhere. The result is that one-half of DOE's business has the potential of being cancelled. In fact, DOE is losing about 15 percent of its planned business in FY 1984.

DOE must, by law, operate the enrichment program on a full cost recovery basis. As it loses business it must spread its costs over a shrinking base of customers. The net result is potential, large price increases to DOE customers who cannot take advantage of the secondary market because of contract-type or company policies.

DOE is carrying out several major investment programs to develop and install newer technology that has the potential to bring down enrichment costs. DOE is constructing the Gas Centrifuge Enrichment Plant (GCEP) at Portsmouth, Ohio. This plant will employ technology that uses only one-twentieth of the energy used by the current gaseous diffusion plants; energy is currently about 50 percent of DOE's enrichment costs. The electric utility industry has always supported GCEP as the only near-term alternative to gaseous diffusion that will, with certainty, start to bring down, in real terms, the cost of enrichment. This would help DOE's competitive position in the enrichment services market. DOE is also continuing the development of Advanced Gas Centrifuge (AGC) technology that has a potential for greater cost savings over the cost of diffusion technology. On a longer term basis, DOE is researching the Atomic Vapor Laser Isotope Separation (AVLIS) process, which might show cost advantages over AGC. However, AVLIS only now is moving out of the laboratory stage and any projections regarding its performance must be viewed skeptically.

Furthermore, by Office of Management and Budget requirements expenditures must be fully covered by SWU sales revenues. The yearly pricing calculation of DOE, however, cannot explicitly include future construction and development costs. Therefore, the cash required to pay for future technology development and construction is generated by including in the price such standard accounting items as depreciation and imputed interest.

The DOE uranium enrichment program is faced with many constraints, some self-imposed and some legally required. It is evident that unless changes are made, the DOE enrichment customers and, thereby, the electric ratepayer would continue to pay for DOE's inability to respond to market changes, and DOE and its customers would lack any reasonable predictability for DOE enrichment services.

DOE responded by initiating, in early 1982, a review of its most current contracts and holding discussions with its customers in an attempt to develop a more flexible commercial vehicle. Over these past two years, DOE published two draft contracts, held numerous discussions with customers, and received a great amount of input. The input from the customers has been consistent: DOE must develop a contract that recognizes the enormous, world-wide imbalance between supply and demand of enrichment services. If a new contract was not developed that would allow a controlled balancing of supply and demand, strong market forces would do so in an uncontrolled manner doing severe damage to DOE and its customers in their wake.

In response to the requests of its customers and the growing pressure from the secondary market, especially in the past six to eight months, DOE crafted what is probably the most suitable contract, giving consideration to the customers' needs and DOE's constraints.

The Edison Electric Institute, whose members include the vast majority of DOE's domestic enrichment customers, believes that the newly announced Utility Services (US) uranium enrichment contract is a reasonable contract and, while each utility must make its own decision on conversion from its current contracts, we are encouraging our members to give the US contract the serious consideration it is due. The US contract provides the utilities with enough flexibility to deal with over-stocked inventories, without depriving DOE the revenues it needs to maintain services and continue the future construction and development that is vital to contain the future cost of uranium enrichment. We applaud DOE for its efforts and believe that they have properly addressed the issue.

We are pleased to note that Duke Power Company, one of DOE's largest customers, was the first customer to execute a conversion to the new US contract, and that DOE has received letters of intent to convert to the new contract from many domestic utilities. While firm estimates will not be known until contract conversions are complete, we estimate that savings to all electric ratepayers will be in the range of several hundred millions of dollars. The new US contract appears to be beneficial to the domestic ratepayers, to the balance of trade for the nation, to achieving an enrichment program that is responsive to the overall market needs, and to encourage the proper allocation of limited Federal resources.

This new contracting activity will require an adjustment to the DOE program for building more efficient uranium enrichment capability. The DOE FY 1985 Budget Request documents indicate that the size and scope of the program will be driven by the market response to the new contract and attendant revenues. We endorse this approach and eagerly await the outcome of the contract conversions and DOE defining the future program. Since the new contracts have been available for less than one month, and the conversion by present customers can be accepted until the end of September, it is too early for DOE to determine the revenues that will be available during Fiscal Year 1985.

We are vitally interested in having the most efficient and dependable enriching technology available for our member companies.

One of the messages the utilities sent to DOE over the course of the last six months was that if DOE offered a new contract that was the right contract, the market response would be such that sufficient revenues would be produced for DOE to continue funding the vital construction and development for the future. When DOE does propose its future operating program details and its program for developing more efficient capability, we will want the opportunity to evaluate the plans and comment on them. In the meantime, we support the continuation of the Gas Centrifuge Enrichment Project (GCEP) at a reduced level until a better understanding is provided on the actual contract situation and an opportunity is provided for the review of the technology choices for improved efficiency. From what we know about the technologies at this point, most if not all of the potential efficiency improvements can be achieved with Advanced Gas Centrifuge technology, while retaining a conservative approach to achieving a reliable long-term supply of enriching services at a reasonable cost.

DOE has indicated that it will make a technology choice in mid-year 1985. It is currently developing a plan for making this determination. Our vital interest in this decision compels us to request an opportunity to participate in the process. We want the choice to be made in a manner consistent with the best interests of those to be served by the decision--the electricity customers.

Three Mile Island Activities - The cleanup of TMI-2 must and will be achieved. All of the contaminated water has been processed through chemical filters to remove the radioactivity, and the surfaces are being decontaminated inside of the containment building. The next major activity is the removal of the head from the reactor to permit access to the damaged fuel. DOE assistance on this effort is essential and we urge full support for, or expansion of, this budget item.

Breeder Reactor Systems - Breeder reactors continue to represent the best apparent technology to satisfy the long-term need of assured electricity supply that can be available for many centuries. Earlier projections of when this technology would be needed were overly optimistic and there is time to pursue the important matters that will permit this technology to be used efficiently. Now that Congress has withdrawn support for the Clinch River Breeder Reactor demonstration project, the DOE breeder program should be directed toward those research and development programs that have the greatest potential payoff. Funds should be made available and concentrated on those tasks that will expand our technological base on breeder reactors and the accompanying fuel cycle.

Convertor Reactor Systems - Light-water reactors being used successfully to produce electricity are converter reactors. The continued use of these reactors is vital to the financial health of the nation. Programs are needed to overcome the unnecessarily burdensome institutional, financial, technical, and regulatory barriers in this area. Also, many utilities continue to support the High Temperature Gas Reactor (HTGR) concept and believe that it should be pursued as a reasonable alternative technology to today's light-water reactors. These utilities support the development of HTGR technology both financially and with managerial expertise through the Gas Cooled Reactor Associates (GCRA). Continued Government cooperation and financial support are vital to the success of the joint effort now underway to determine if the HTGR will be sufficiently attractive to achieve commercial acceptability.

STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA), the national service organization representing more than 1,750 local publicly owned electric utilities throughout the United States, submits this statement to the Energy and Water Development Subcommittee of the Senate Appropriations Committee in support of certain energy budget requests for Fiscal Year 1985.

Two precepts run through the budget request which we strongly oppose. One would increase fees to pay for the Federal Energy Regulatory Commission's operation. The other would mandate upfront financing of federal projects by nonfederal entities, with the result in most instances of the elimination of preference in the sale of federal power. In addition, although not publicly stated in the budget request, the Administration is explictly looking at the federal power marketing agencies as a source of new revenues by eliminating cost-based pricing of federal power and selling it at market rates.

This statement will examine these precepts in specific FY 1985 budget requests for the following agencies: the Federal Energy Regulatory Commission; Army Corps of Engineers and Bureau of Reclamation; and the federal power marketing administrations.

FEDERAL ENERGY REGULATORY COMMISSION

The Federal Energy Regulatory Commission's (FERC) budget request for FY 1985 is about $100 million, of which FERC has stated $60 million will be offset by fees, annual charges, and other revenues. APPA recommends that the subcommittee thoroughly examine the $60 million that FERC seeks to recover through fees and annual charges to ensure that such fees are not excessive.

Annual charges for the use of federal dams by nonfederal entities are a particular concern to APPA members. FERC has issued a proposed rule on annual charges which in most cases will impose excessive annual charges, is unnecessarily complex, and will discourage hydroelectric development.

In lieu of the Commission's proposal, APPA supports H.R. 3660 and S. 1132, which recently passed the Senate. This legislation specifies that the annual charge cannot exceed $1 per kilowatt of installed capacity and 1/2 mill per kilowatthour of energy produced. This method will result in a charge that is reasonable, recompenses the government, does not unreasonably increase the price of power to consumers, and is specific to the characteristics of each project.

It has been argued that this method will not return sufficient funds to the government. It should be noted that the average annual charge assessed by FERC prior to 1979 was approximately $1.92 per kilowatt of installed capacity. (Since 1979, FERC has delayed or set a cap on the annual charge that will be assessed in anticipation of a new rule.) Under the method prescribed by S. 1132, the charge for the same projects would average about $3.00 per kilowatt of capacity. Furthermore, because of the formula's simplicity and certainty, more nonfederal development will be encouraged, resulting in more annual charges being collected.

In addition to annual charges for federal dams, fees for regulation of wholesale electric rates substantially affect APPA members. In 1982, FERC issued a proposed rule for assessing fees for declaratory orders, setting just and reasonable rates, and actions on motions for wheeling and interconnection. APPA opposes the collection of such fees for the performance of essentially judicial functions. Furthermore, since rate regulation is primarily for the benefit of the general public, the imposition of such fees is clearly not within FERC's authority.

APPA therefore strongly recommends that sufficient funds be appropriated by the Congress so that FERC may not resort to extraordinary charges to finance its operations.

FERC Regulation of Power Marketing Administration Rates

APPA is pleased that a delegation order is now in effect which retains FERC review of power marketing administration (PMA) rates, allows FERC to review allegations that rates are too high, as well as that they are too low, and prohibits FERC from reviewing policy determinations of the Bureau of Reclamation and Corps of Engineers. As this subcommittee is aware, approximately 510 public power systems buy power from federal power marketing agencies, so that FERC review of PMA rates is of significant concern to our membership. We are appreciative of the subcommittee's interest.

Grace Commission

While FERC's current review of PMA rates is resolved by the delegation order, the President's Private Sector Survey on Cost Control, directed by Peter Grace and called the Grace Commission, has recommended that FERC's review of PMA rates be restricted to a determination of whether rates are adequate to recover the federal government's investment. No challenge to the rates as excessive would be permitted.

From public power's viewpoint, it is extremely important that there be an opportunity to challenge rate decisions made by the PMAs through FERC proceedings. Such review is a strong incentive for establishing rates in the first instance which are as low as possible, consistent with sound business principles. It also affords customers an opportunity to challenge unjust and inappropriate tampering with PMA rates in an effort to increase rates for federal power artificially.

It is significant to note that the FERC task force leader for the Grace Commission was Raymond J. O'Connor, who has since become the chairman of the Commission. Therefore, APPA urges this subcommittee to monitor rate review so that customers are not deprived of the protections afforded by FERC review.

Hydropower Regulation

APPA supports the Commission's budget request for hydropower regulation of $26.1 million as necessary to keep up with incoming applications. Over the past several years, there has been a tremendous increase in hydro workload at FERC. The Commission anticipates that in FY 1985 it will complete 1,336 hydro licensing items.

With respect to hydro licensing, the Grace Commission has also recommended that FERC's hydro license exemption authority be extended from projects of 5 megawatts (MW) to 15 MW. This would essentially eliminate preference for such sites. Chairman O'Connor told this subcommittee in his March statement that "the exemption process authorized by the Congress in 1980 is not meeting Congressional expectations in terms of expediting the construction and completion of qualifying hydro projects." If this is the case, APPA recommends that the exemption be decreased, not increased, and we urge this subcommittee to oppose such an extension of the exemption to 15 MW.

Electric Power Regulation

FERC has requested $20.1 million for electric power regulation. APPA supports this request, as we have in the past, because FERC regulation of wholesale rates in an effective and timely manner is critically important to the approximately 900 public power systems that buy part or all of their power from investor owned utilities. However, in its budget request, FERC said the processing time for electric rate filings will be lengthened significantly by allowing construction work in progress (CWIP) in wholesale rate base.

APPA cannot comprehend FERC's statement. The Commission is allowing any private utility, regardless of its financial condition, to collect such relief automatically. The very purpose of the rule, according to FERC, is to provide such utilities with expeditious rate relief. If this is their objective, then we do not understand how this increases the time in which it takes to process electric rate filings.

APPA, of course, is also strongly opposed to the FERC CWIP rule. The rule allows private utilities to recover 50 percent of the financing costs of a plant while it is under construction. The rule has significant financial and competitive implications for the over 900 local publicly owned utilities which buy some or all their power at wholesale. It will result in some public power wholesale customers losing capital which could be invested in their own generating plant, it may place some public power systems in "price squeezes," and it creates a substantial risk that public power systems will never benefit from their CWIP contribution. Over the last 10 years, nearly 150 electric plants were cancelled after more than $10 billion had been spent on them.

Congressional action to overturn the CWIP rule is underway. The House passed H.R. 555 on February 8 by a vote of 288-113. Instead, FERC would have to consider each utility's request for CWIP on a case-by-case basis. A similar bill, S. 1069, is pending in the Senate.

FEDERAL WATER PROJECTS

For FY 1985, the Administration has requested cost-sharing or upfront funding by private sponsors for new water projects started by the Corps of Engineers and the Bureau of Reclamation. Public power systems, entitled to preference in purchasing power produced at federal dams, are concerned that, under these proposals, any entity, whether public or private, which advances upfront construction funds is usually given either power or revenues in proportion to the amount of the contribution without regard to preference.

APPA understands the budgetary restraints that prompt nonfederal financing proposals, and we have given much thought to alternative means of financing federal projects.

Preservation of preference rights of public power systems is our paramount concern in any financing plan. The preference concept is based on the principle that the nation's water resources belong to the people, and the benefits of these resources should be distributed directly to the people when possible. In addition, it promotes competition with private utilities. Preference is essential to preserve the consumer owned utility movement in this country.

APPA has measured various nonfederal financing proposals according to the following criteria:

1. Will the preference rights of local public power systems and rural electric cooperatives be fully protected?
2. Will the federal government retain control over project selection, development, and operation?
3. Will the power produced be marketed through the federal power marketing administrations?
4. Will power be developed and marketed at the lowest possible cost?

Without question, preference does not mean less than cost-based rates. The government fully recovers its costs. Power from federal projects is sold by the power marketing agencies to preference customers at rates which must cover all costs expended by the federal government, including interest, amortization, and maintenance of power facilities over a period of not to exceed 50 years.

Preference customers are 100 percent cost-sharers in multiple-purpose hydroelectric power projects. Indeed, preference customers often pay more than the cost of a project's power features since, under reclamation law, they also pay, in addition, substantial amounts toward repayment of costs allocated to irrigation features of projects. We have supported, and continue to support, this role for hydropower generated at federal projects.

We object, however, to indiscriminately lumping power, which pays its way 100 percent, with other functions, for example, navigation and flood control, the costs of which traditionally have been largely borne by the taxpayers as a whole, rather than by project beneficiaries. This gives rise to the impression that power users are not carrying their full burden. That is obviously not the case.

A nonfederal financing scheme was attempted in S. 1739, an omnibus water resources bill. As reported from the Senate Subcommittee on Water Resources of the Environment and Public Works Committee, the bill would have: (a) turned over to nonfederal parties future hydroelectric development at Corps of Engineers and Bureau of Reclamation dams, and (b) voided traditional preference to consumer owned utilities in the selling of power produced at any new federal facility.

Consumer owned utilities' objections to these provisions of S. 1739 were heard, and the bill was modified when it was considered by the full committee. It is clear from provisions of the committee report (Senate Report 98-340 at p. 53) that the majority of Senate Environment Committee members share the concerns of consumer owned utilities that preference be preserved, that the federal government continue to exercise considerable control over the development of hydro power at federal projects, that power from such projects be marketed through the power marketing administrations, and that the rates for such power be based on cost of production.

We urge this subcommittee to consider these criteria when evaluating the cost sharing proposals for the Corps and Bureau for FY 1985.

The Corps of Engineers and Bureau of Reclamation

The Corps of Engineers has requested $2.5 billion, and the Bureau of Reclamation has requested $1.08 billion, for FY 1985. APPA supports the budget requests for both agencies as they directly relate to hydropower.

The two new construction starts proposed by the Corps are located in Oregon -- Strube Lake Project and Bonneville Power Units. The Corps anticipates about $126 million in upfront nonfederal financing for these projects.

The two new construction starts for the Bureau of Reclamation are Boulder Canyon Project in Arizona and Nevada, of which $42.2 million in upfront financing is expected, and the Pelisades Powerplant in Idaho, of which $87.8 million of upfront financing is anticipated. There is also a supplemental request for three new Bureau of Reclamation projects: Headgate Rock, Arizona; Santa Margarita, California; and Buffalo Bill Dam, Wyoming. Since Headgate Rock is an Indian project, cost-sharing is not applicable. The Bureau anticipates $47 million from project sponsors for Buffalo Bill, and $11.4 million for Santa Margarita.

Again, we urge this subcommittee to examine these cost-sharing schemes so that preference in the sale of federal power is preserved.

FEDERAL POWER MARKETING ADMINISTRATIONS

APPA supports the FY 1985 budget requests for the four power marketing administrations, which include: $3.2 million for the Alaska Power Administration; $35.7 million for the Southeastern Power Administration; $36.2 million for the Southwestern Power Administration; and $248 million for the Western Area Power Administration. The fifth PMA, Bonneville, requires no appropriations since it operates on a self-financing revolving fund basis. Revenues from the four PMAs in FY 1985 are expected to be $721.3 million -- more than they request in appropriations.

As noted previously, there have been consistent attacks on PMA rates for federal power. Under the law, federal power must be sold to preference customers at the lowest possible cost, consistent with sound business principles. There are 510 public power systems that buy from the five PMAs, excluding TVA, and, for many of these systems, the rates charged by PMAs for federal power are economically critical.

On three recent occasions, Congress has expressed its intent to continue cost-based pricing of federal power. This means that the federal government's full investment plus interest is returned over a reasonable period of time. In contrast, the federal government is not permitted to mark up federal power rates based on some hypothetical value and reap profits from development of the nation's water resources. We urge this subcommittee to resist any effort to force the PMAs to sell power at "market" value.

CONCLUSION

In conclusion, APPA asks this subcommittee in its examination of the FY 1985 appropriations request for the Federal Energy Regulatory Commission, Army Corps of Engineers, Bureau of Reclamation, and the federal power marketing administrations to consider APPA's concerns. We urge members of this subcommittee to reject excessive annual fees proposed by FERC to finance its operation, upfront financing of federal projects by nonfederal entities which would result in the elimination of preference in the sale of federal power, and the abandonment of pricing federal power at cost and selling it at market rates.

STATEMENT OF RICHARD O. WILKE, VICE PRESIDENT, RESEARCH AND DEVELOPMENT, Q CORP.

It is requested that the enclosed information regarding appropriation for continued applied research in ocean wave energy systems be included in the record of budget hearings for the Department of Energy.

Basic research on the Tandem-Flap Wave Power Conversion Device, previously funded in part by the DOE, has demonstrated the feasibility of this new concept. Supporting studies by marine economists at the University of Michigan regarding the projected cost-effectiveness have shown the system to be quite competitive when compared to alternative methods of generating electrical power.

The next step of applied research is to design and test the first version of a small-scale, open-water model. Unfortunately, the expense associated with this intermediate level of research exceeds that which our small Corporation could provide. Our subsequent request for Federal support represents a continuation of the endorsement given us by the DOE, and is submitted also on their behalf in terms of the generic language "wave energy systems".

Mr. Pat Collins, Under Secretary DOE, has agreed that should Congress ammend the appropriations funding to include support for wave energy systems, as requested herein, a viable wave energy program would continue and contain, in particular, funds to continue research on the promising Tandem-Flap concept.

Thank you for inclusion of this material in the record, and for your consideration of its support.

REQUEST FOR APPROPRIATION -- WAVE POWER SYSTEMS RESEARCH

OBJECTIVE - to appropriate continued Federal support for DOE applied research relating to (non-OTEC) ocean wave power systems, and, in particular, for a new device called the TANDEM-FLAP wave power conversion system.

HISTORY - Q Corporation has recently completed a $97.5K cost-sharing contract from DOE for basic research on the TANDEM-FLAP device during 1980-81. The research was a joint effort with the University of Michigan for theoretical and experimental evaluation of two-dimensional models. Test data were extremely encouraging; absorption efficiencies were in excess of 90%, and response curves were smooth. Several technical papers have been presented on the results. Unfortunately, all the DOE wave energy programs have since been essentially eliminated by administration policy.

CURRENT EFFORT - is continuing as follows:

- a $15K grant to the University of Michigan to develop a three-dimensional theoretical simulation of the device;
- a $25K project order to design and build the first small 3-D scale model, which will be free-floating, self-contained, and instrumented for testing; and
- a $13K contract to the University of Michigan to conduct wave tank tests of the scale model.

Test and evaluation of both the model and the simulation will be complete about May/June, 1984.

REQUIREMENT - Continued assistance is needed for the next phase of applied research scheduled for late CY84 and CY85. An open-water, scaled prototype will be designed specifically for moderate sea state experimentation in the Great Lakes. This fresh-water configuration will be 3 to 4 times the scale of our current wave tank model and will be moored to the lake bed. The test program will include; design and construction, instrumentation, installation, operational support, computer simulation, data analysis, engineering evaluation, management and reporting, and would range between $387K and $500K, depending on the exact design dimensions.

REQUEST - Support of the above applied research, along with several other smaller wave energy projects, is requested by Q Corporation on behalf of the DOE program on wave energy systems. Total request for appropriation under DOE Renewable Energy area is $800K for FY85.

WAVE ENERGY PROGRAM R&D REQUIREMENT

1. Tandem-Flap Wave Energy Conversion Concept Evaluation and Open-Water Testing of a Moderate Scale Model

A moderate-sized, scale-model of the Tandem Flap device will be designed as a testbed to evaluate open-water performance using the incident waves existing in the Great Lakes. The model will be dimensioned to the local wave spectra and thereby provide critical open water performance data without incurring the large expense of an ocean-sized model. Investigation of several specific sites will be conducted in terms of unique wave spectra, temporal variation of wave form, directionality, depth and bottom characteristics and maritime constraints (with the U.S. Coast Guard). Data will include not only existing available wave form records, but also involve measurements obtained from selected sites (3) by using a University of Michigan wave bouy measurement device.

Projected performance of the Tandem-Flap system will then be evaluated at the sites using the recently developed 3-D hydrodynamic simulation (theoretical model) at the U of M. An optimization of design parameters study, based on the above, will determine optimum dimensions, nominal flap separation and draft, power take-off sizing, bouyancy and mooring requirements, exact location, and so forth.

Cost estimates of the physical apparatus are based on knowledge of the nominal wave sizes existing, and previous experience in model construction costs for current testing. The evaluation includes one week for checkout, 2 weeks of variational testing, and at least 1 month of continuous on-station tests to evaluate sustained performance, maintainability and survivability.

Estimated Costs

Investigation of specific site wave form data	$ 10K
Application of U of M wave bouy measurement device and analysis of 3 locations	30K
Projected performance using 3-D math model	15K
Optimization of design parameters study	15K
Design/engineering of optimum power takeoff system	10K
Advanced control analysis (A proposed doctoral program at the U of M)	20K
Model design and construction:	
Engineering and labor	150K
Materials	100K
Operational tests and data gathering	50K
Transportation/assembly/miscellaneous	30K
Data analysis/evaluation/reporting	30K
	$460K

2. Investigation of specific site wave data.

A complete historical data set, preferrably spanning more than one year is required for validation and use in estimating ocean wave energy. Specific near shore site data, preferably Pacific Northwest at approximately 1 to 2 kilometers offshore, are required to validate estimates of wave power predicted from hindcast computer based numerical wave specification utilizing the Spectral Ocean Wave Model (SOWM) at the Navy Fleet Numerical Ocean Center (FNOC). Site directional and spacial wave spectra are necessary for design and prediction of extracted power from wave energy conversion devices. It is possible that specific site data exists that may be utilized in validating predictions from the SOWM data computer base, (eg. Corps of Engineers or Navy), but it is unlikely that the specific directional and spacial spectra can be extracted for a specific site without extensive investigation, and ultimately direct on site measurement.

Estimated Costs

Investigation, data analyses, correlation to SOWM predictions	$ 50K
On site wave buoy measurement including data transmission, shore recording, encoding and data reduction	150K

3. Validation of analytical models of oscillating water column (OWC) pneumatic turbine extraction devices.

A large scale controlled experiment is required to validate the theoretical analyses of the complex hydro-thermodynamic system. Only very small scale test model data exist, where the friction, eddy, and radiation damping losses are difficult, if not impossible, to accurately estimate or quantify. Known United States test data are from small open bottom 'cylinders', (point absorbers), with unshaped-sharp edged openings. United Kingdom research (far more extensive) has progressed from a similar beginning to large scale shaped directional opening OWC systems analyses, but still based upon very small scale model tests. There are still differences in the expressions for and values of damping terms in the theoretical analyses of the formost UK research leaders. A large scale moored point absorber test model(15 ft. diameter) was deployed by the Queens University, Belfast, but was lost due to storm currents; another of different (terminator) design is planned.

At a sufficiently large test model scale, fricitional effects should be negligible and, with proper design, eddy damping should be minimized; thus with larger test waves and values of air mass flow, pressure, and temperature and more accurate measurements the configuration performance including radiation damping should be quantifiable to a high degree of confidence.

The test model in the proposed experiment should be designed with the capability for simple changes in configuration, and for flow visualization.

Estimated Costs

Test model design and construction	$ 50K
Wave tank testing	120K
Supervision and data analysis	50K

4. Improve the accuracy of analytical predictions of OWC - pneumatic wave energy devices and develop reliable estimates of attainable wave power for specific lacations.

Utilizing the results of Task 3 develop improved theoretical equation expressions for the combined hydrodynamic and thermodynamic performance, including power train dynamics and configuration constraints related to wave frequencies. Combine with data from Task 2 to attain high confidence temporal wave energy extraction predictions based on system definition, accounting for resource variability, power management/utilization, configuration and size.

Estimated Costs $100K

Introducing...The Tandem Flap A Wave Power Conversion System

The idea of extracting energy from the enormous renewable supply available in ocean waves and converting this to useful electric power has challenged inventors for decades. Yet, to date, no concept has evolved to the point of commercialization. The primary reason for the demise of each usually lies in the inability of previously proposed ocean wave power devices to deliver reliable power cost-effectively when subjected to the harsh environment of the open ocean. Devices which employ complex mechanisms, submerged parts, water seals, and so forth usually demand increased sophistication to survive, which, in turn, reduces reliability and cost effectiveness. It appears evident that if a wave power system is to be successful, it must be able to demonstrate efficient performance -- yet remain mechanically simple.

The patented concept of the Tandem-Flap Wave Power System is about as basic as is possible -- yet it involves a subtle principle which permits the attainment of very high efficiences, even in random seas. The principle of the hydrodynamic interaction between two parallel moving plates (flaps) in proximity to each other is the key, and has theoretically been shown to be able to extract 100% of the available wave energy. And what could be less complex?

Q Corporation has recently completed concept feasibility testing in a wave tank at the University of Michigan. An engineering test model demonstrated energy extraction efficiencies in excess of 90% in mono-directional seas, and 71% in random seas.

The next research step is aimed at detailed real-world performance analysis, both in model testing and in theory. A small, revised test model and an appropriate theoretical analog will both be exercised in multi-directional and oblique seas. The results, together with a wave spectra analysis of several possible open-water sites, will provide the basis for the construction and testing of the first small-scale prototype system.

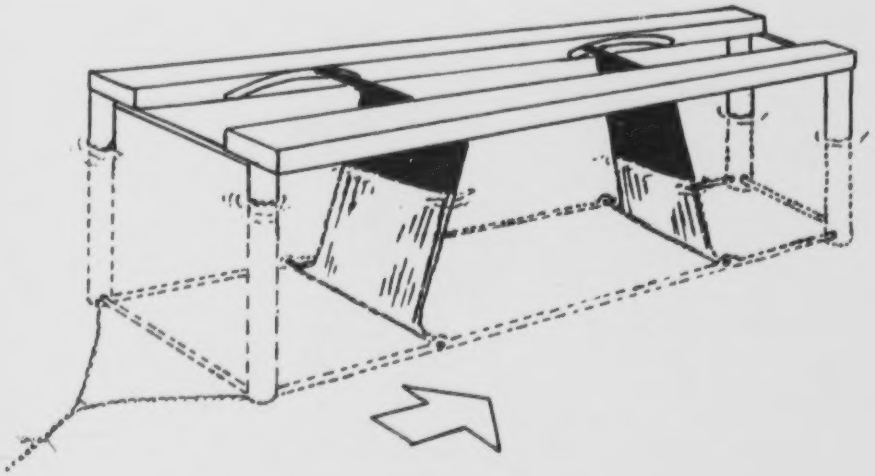
The following is intended to briefly introduce the Tandem-Flap wave power device: its background, current status, and future programs. It has substantially passed the two initial tests -- high performance and concept simplicity. It may never serve to light the lights of major inland metropolitan areas, but it has particularly excellent potential to become a viable energy source for coastal cities, states, countries, or island communities where indigenous energy resources are limited. Further, its basic ability to efficiently absorb wave energy suggests some simultaneous or alternative uses such as preventing coastal erosion or as a breakwater to protect beaches, marinas or shipping lanes.

Background

The tandem-flap concept has evolved from several years of research by Q Corporation. Initially focused on a single moving flap because of its inherent simplicity, the research expanded to multiple flaps since one flap was basically limited to 50% maximum theoretical efficiency. Interest was aroused when theoretical studies showed that 100% efficiency could be achieved by properly employing only two moving flaps. A literature search revealed that no experimental tests had ever confirmed such a theory.

Research also showed that by selecting certain values of separation, draft and connecting forces, the system could be "tuned" to the incoming wave, that is, 100% of the incident energy could theoretically be extracted. Further, small adjustments in these values could compensate for changes in ocean conditions. Patents were obtained in the United States and several foreign countries.

Q Corporation contracted with the University of Michigan, Department of Naval Architecture and Marine Engineering, to evaluate the model theoretically, experimentally, and economically. An unsolicited cost-sharing proposal was submitted to the U.S. Department of Energy (DOE) for funding support during the initial feasibility tests. The proposal was endorsed by seven members of the U.S. Senate interested in the potential of the Tandem-Flap concept. A cost-sharing contract was let to Q Corporation by the DOE, and administered by the Solar Energy Research Institute (SERI).



Each pair of tandem flaps will have weatherproof housing for the power equipment and cylindrical pylons for floatation. Pairs will be grouped together as required and will use single-point catenary mooring.

Fig. 1

Current Status and Results

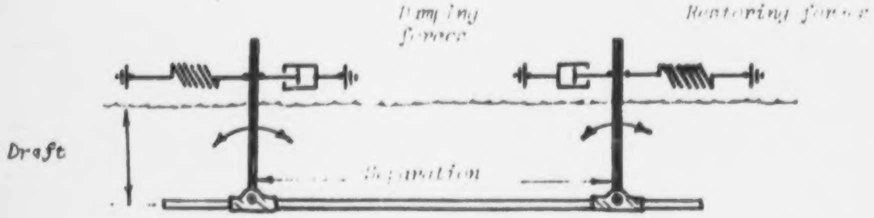
The research outlined in the above contract was successfully completed by Q Corporation and the University of Michigan, and the results, in general, exceeded our expectations. Only a few conclusions can be mentioned here, but detailed procedures and results are available in a two-volume final report.

The evaluation used a large wave tank, a specially designed experimental model, and instrumentation with real-time computer analysis to examine the behavior and sensitivity of such a device. A theoretical model (mathematical analog) was exercised in conjunction with experimental tests. The validated analog was used to examine numerous areas impossible to experimentally test. Some of the important results follow.

Test/theory correlation was very good. Excellent values of absorption efficiency (over 90%) were often achieved and performance in a random sea exceeded 70%. More importantly, however, the system performance curves were generally broad-banded. This means that when sea conditions change (which they always do) the performance of the tandem-flap system is not rapidly degraded. When conditions have changed to such a degree that performance deterioration does become significant, then one of several physical parameters (like flap separation, draft, or damping) can be slightly adjusted to bring the performance back up to maximum. This broad response was an unexpected bonus and is probably, in the long run, much more valuable than the high peak values of efficiency.

The sensitivity of the device to all of the control variables was rigorously defined. Optimum separation distance between the flaps was identified and the permitted variation from optimum separation was established. The relationship between flap draft (depth) and absorption efficiency was isolated. Mooring forces were evaluated and related to control variables.

Exact physical dimensions of the device for a given site application can be specified. Similarly, target values for most of the control parameters can be specified along with their required variability. Most design options will be easily resolved when the specifics of each geographic location and its unique wave spectral characteristics are known.



The four basic control variables evaluated by experiment

The Future

The above research, being the first experimental tests, established baseline performance and system sensitivities. Some investigations into certain advanced questions (such as nonlinear effects) were pursued, but only to a limited degree. The major concern at this point is what happens to performance in a three-dimensional or real-world application. Our limited testing in this area was very encouraging, indicating that performance, in fact, actually increased in some cases compared to the two-dimensional tests.

In spite of such excellent results, the fact that portions thereof run contrary to intuition leads one to be cautiously optimistic. Also, since one must revere the real world with a generous bit of respect, it was decided that the next phase of research (about 12 months) would further evaluate three-dimensional behavior in so far as reasonably possible before plunging into any open-water, scale-model testing.

We have proposed three intermediate steps, all with three-dimensional objectives, which will better prepare us for the eventual open-water prototype program.

First, we propose to design software and exercise an adequate three-dimensional theoretical model of the system. Such an undertaking is currently within the state of the art, although it is quite complex and lengthy.

Second, we would like to experimentally test a small three-dimensional model in the wave tank. This model will be developed specifically to examine certain areas of three-dimensional response.

Third, we propose to examine the unique wave spectra and physical characteristics of several possible alternative sites for open-water tests of the tandem-flap system. These studies will allow us to properly dimension and design the follow-on models to be tested in the real world.

The follow-on open-water tests will use a small-scale prototype model. Tests will be conducted in multi-directional waves of varying size and frequency.

The last step prior to commercial application would be the development and testing of a full-scale open-ocean prototype which would be deployed, as either a fixed or floating station, in the salt water environment. Then we will be able to determine how effectively the high efficiency and basic simplicity of the Tandem Flap concept accomodate the difficulties of the real world. Q Corporation feels that the Tandem Flap Wave Power Conversion System has an excellent chance of surviving this gauntlet, thus becoming a viable alternative energy source.

Inquiries regarding the Tandem Flap Wave Power System may be made to: D. M. Honigman, Chairman, or R. O. Wilke, Vice President, Research and Development

STATEMENT OF DR. THOMAS E. STELSON, VICE PRESIDENT FOR RESEARCH, GEORGIA INSTITUTE OF TECHNOLOGY, AND CHAIRMAN, COMMITTEE ON ENERGY, NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

Universities have viewed with alarm the continued dramatic reductions in energy research and development program budgets proposed for fiscal year 1985. In the crucial areas of fossil energy, energy conservation, and solar and other renewables, proposed budget reductions total more than $112 million from the low levels of FY84 or an 11% reduction. The reduction from FY81 is $1,843 million or more than 68%.

These are areas of national interest that are among the most crucial to the future energy needs of the country and are also the most critical with respect to requirements for advanced training of energy experts needed by industry, government, and universities. The magnitude of the reductions are particularly devastating to the continuity of research, development, and educational programs in universities.

The characteristics of these forms of energy vary greatly from state to state and region to region. Fossil energy varies with respect to both the characteristics of coal, gas, and other fossil energy forms, but more importantly has different impacts upon the environment depending upon where the conversion system is located and which conversion process is used. The same coal burned in the same power plant in one part of the country must be handled differently than in another part of the country because the wind and environmental conditions vary by substantial amounts. The state and regional differences are even more pronounced with respect to energy efficient improvement and solar and other renewable energy systems. Conservation in the north relates to saving heating expense in the winter time in buildings. In the South, it is related to air-conditioning costs. Industrial energy efficiency improvement is important everywhere. Universities are a particularly valuable resource in the United States for adapting general research to specific state and regional needs.

The proposed reductions in the budget in these areas are especially detrimental to the future of university research and to the relationships of these universities to the industry and culture in the locations where they operate. Unlike fission energy, which is much the same in Florida as it is in Maine, fossil and renewable energy systems vary enormously by location and use. Furthermore, both short-range and long-range energy impacts are undoubtedly more significant from fossil and renewable energies. The technical challenges are great, especially if one considers the diversity of needs. Just because the research needs are different from state to state and region to region does not mean that they are not sophisticated, important, and long-term high-risk intellectually challenging research. The very fact that they are locally oriented makes them higher than normal risk, because research output is not generally applicable nationwide to the same size and uniformity of market. Thus, recovering research expense is more difficult and challenging. Plus the very complexity of regional needs means that Federal support for research and development in these areas is more important, not less important.

We recommend to you that these enormous and devastating budget cuts be reconsidered and reversed. In fact, instead of budget cuts, these are the most promising areas for future success in serving the energy needs of the United States; and we encourage you to consider expanding research and development programs to best serve the national interest.

Renewable energy systems already provide for this country twice as much energy as does nuclear energy. Furthermore, renewable systems are growing at a much faster rate. We would further point out to you that renewable energy systems frequently supply the low-grade thermal energy needed by industry and in our homes in ways that are more efficient and of much lower cost than the complexities of centralized, nuclear electric power generation. We would also point out that the demand for electric power in this country is not growing primarily because of the success of energy conservation and improvements in energy efficiency. Continued improvements in energy efficiency will focus energy needs of the future on low-grade areas of renewable energy and coal generation to the extent that big centralized, inefficient energy systems will be in less demand.

Because of the enormous resources of coal and natural gas in this country, a strong and expanding program of fossil energy research and development is of critical importance. Coal can be effectively used in a wide variety of local, industrial as well as central generating plants. Thus, a versatile and secure energy future can also be helped by greater utilization of coal.

The last few years have dramatically illustrated that the character of energy mix in this country is dramatically changing away from oil, nuclear and centralized electric energy to a distributed coal, coal generation, and renewable energy systems. The technical complexities of distributed systems are at least as great as with centralized systems. The dramatic current growth is not because of lack of complexity but is because of great economic viability. There is not a lack of need for Federal support of research and development in these energy areas -- in fact, the need is most acute! The primary difference is that long-range high-risk energy research and development activities in coal, energy conservation, solar, and other renewables will have more rapid technology transfer, more widespread utilization, and more economic development stimulus on the local level. Many of these energy systems are more labor intensive; thus, they will contribute immediately and in the long range to a reduction in unemployment, particularly among less well-trained workers.

Distributed energy systems are particularly attractive and viable in university research and development settings. Whereas, centralized systems are more suitable for national laboratories. We urge you to reconsider national priorities in energy research and development and move programs and funding away from national laboratories with their bureaucratic encumbrances and inefficiencies and into universities where Federal money will be multiplied by state and rgional resources and where the powerful and important by-product of greatly increased manpower development will contribute now and in the future to the country's energy independence and achievement. For each dollar of energy research and development placed in a university, about twenty-five cents is used to support students who contribute to the needs of the country for the next forty or more years after their training. In contrast, for every dollar placed in a national lab, less than one cent supports students who contribute to the future energy manpower needs of the country. University energy research and development is not only lower cost and more efficient, but it also contributes the important additional element of enhancing and enlarging human resources achievements.

Energy research and development in the United States today is primarily planned as a top-down process. This results form the legacy of the atomic energy committee where a few people make crucial decisions and these decisions were implemented by the bureaucracy with little evaluation or interpretation. Changing times now indicate that we should have an energy research and development program that is more bottoms-up. This means that local and regional needs should be organized and formulated and coordinated at the national level so that energy research and development programs serve the whole country in an intimate network that has the support and understanding of all the people.

We urge you to abandon the old undemocratic and now outmoded system of planning energy research and development and move to a new system that involves a greater understanding and input from all people at all levels in our society. We are sure that any such approach will indicate that a dramatic shift of resources into programs that support conservation, coal, natural gas, and the utilities of renewable energy systems will be the primary focus both now and in the next century when these systems will contribute most to the future energy needs of this country.

In summary, the best interests of this country will be served by expanded research and development programs in fossil energy, solar and renewable energy, and improvements in energy efficiency. We urge the Congress to reject the inappropriate administrative budget reductions in these areas and replace them with a program where the highest priorities are given to those program areas where the greatest future opportunities exist for improving energy conditions in this country.

STATEMENT OF THE LABORATORY FOR LASER ENERGETICS

Inertial Confinement Fusion Program at the University of Rochester

The University of Rochester's Program in inertial fusion is comprised of three distinct and complementary components: the DOE research program in direct-drive, operation of the facility for users (through National Lasers Users Facility (NLUF)), and the Laser Fusion Feasibility Project. More than $108,000,000 have been invested in the research programs, of which 48% has been derived from non-federal sources. Over $37,000,000 have been invested in building and laboratory equipment. Our current annual operating budget is about $9,000,000 of which salaries and their related benefits account for 60% of the total operating costs. The Laboratory for Laser Energetics (LLE) at the University of Rochester is both a cost effective and highly productive research center.

The purpose of the Rochester program is to support and enhance the DOE Military Applications program by providing laser-matter interaction data, capsule physics, and laser and optical engineering. During FY83, LLE made extraordinary progress in demonstrating the advantages of short-wavelength lasers for efficient coupling to fusion targets. Experiments at LLE with both the 24-beam, infrared (1054-nm) OMEGA facility and the single-beam, ultraviolet (351-nm) Glass Development Laser (GDL) have concentrated on the basic physics of coronal coupling, energy transport, and uniformity for short-wavelength, direct-drive laser fusion. This has been especially beneficial for providing some of the critical data, not otherwise available, needed to meet the milestones of the National Inertial Fusion Program.

Rochester was first to demonstrate and patent the high-efficiency, frequency-tripling process. This is now used in virtually every short-wavelength inertial fusion laboratory and has made glass lasers a potent research tool to achieve success in inertial fusion. A major highlight of the FY83 program was the completion of the conversion of the first six, ultraviolet (351-nm) beams of the OMEGA system. The initial six-beam conversion and experiments were completed on-time and on-budget and exceeded all the performance criteria established by DOE, according to the DOE report. In addition to the conversion activities, the GDL and OMEGA facilities provided 1,724 and 1,182 shots, respectively, for experiments during the year; 368 target shots were conducted for users of the NLUF.

In addition to its research mission which supports the DOE weapons program, the Laboratory continues to maintain a leading role in training students; over 21 Ph.D. thesis projects are in progress now. Previously, 37 students have completed their Ph.D. research at the Laboratory.

In FY 1984 an additional six OMEGA beam lines will be converted to 351-nm operation, leaving twelve more to be converted, which we hope to do in 1985. Little additional value can accrue to the National Program unless all 24 beams are converted. In order to carry out this activity, the Rochester Program requires a total operations budget of $7.5 million of which $1.4 million will be used for the ultraviolet conversion of 12 beams and $0.6 million for the National Lasers Users Facility plus $0.3 million for capital equipment. These funds are essential to fulfill LLE's scientific program. When this conversion activity is completed, we expect to perform significant, spherically symmetrical, ablative, target-implosion experiments which will help to define the conditions necessary for establishing the scientific feasibility of inertial confinement fusion. The data from these future experiments are critical to the National Program decision planned for 1987.

The demonstrated high-repetition rate and system reliability of OMEGA gives us confidence that the LLE facility will continue to be a valuable and unique resource, both for the National Inertial Fusion Program and for other users of the system.

STATEMENT OF DR. W. HOWARD ARNOLD, GENERAL MANAGER, ADVANCED ENERGY SYSTEMS DIVISION, WESTINGHOUSE ELECTRIC CORP.

The history of Westinghouse is marked with pioneering achievements in electric power, from the harnessing of the power of Niagara Falls to the commercial application of nuclear power.

Our involvement in nuclear power development is well known...a 35-year legacy from the Nautilus submarine reactor through 83 on-line nuclear power plants worldwide. Our Water Reactor Divisions is the largest commercial nuclear organization in the world, having provided or designed 75 percent of the free world's pressurized water reactors, itself the leading reactor type. Our company has also been involved in the forefront of various advanced nuclear concepts, such as the liquid metal reactor (LMR) and the compact gas reactor for rocket engines (NERVA). We were also contractor for the U.S. demonstration heavy water pressure tube reactor (CVTR).

We have played a lead role in support of the Department of Energy on the Fast Flux Test Facility (FFTF) and the Clinch River Breeder Reactor Project (CRBRP). At the present time we are actively participating in large plant design studies and the Liquid Metal Fast Breeder Reactor (LMFBR) Base Technology Program at the Advanced Energy Systems Division and the Westinghouse Hanford Company, which operates the Hanford Engineering Development Laboratory for the Department of Energy.

Today, Westinghouse is applying this experience base to the engineering and design of advanced light water reactors, low cost advanced reactor concepts, and compact reactors for space and land-based applications.

I am taking this opportunity to discuss issues related to maintaining the nuclear option in the United States because these issues are crucial to this nation's continued economic growth and national security.

BEYOND CLINCH RIVER

Westinghouse was heavily involved in the Clinch River Breeder Reactor Plant (CRBR) Project from its beginning in 1972 until termination in 1983. Prior to that, Westinghouse was at the forefront of much of the research and development of liquid metal fast breeder reactor (LMFBR) technology including design of the Fast Flux Test Facility. These projects were valuable and important elements of a mission-oriented program to develop the breeder reactor option to meet this nation's future energy needs.

Westinghouse made a significant corporate commitment to the development and demonstration of breeder reactor technology, because we, along with the many industry, energy and scientific experts worldwide believe that this technology was and is the most viable option for providing safe, economical and abundant energy for centuries to come.

The LMFBR program objective of providing a viable energy option for the U.S. in the next century remains unchanged. However, with the termination of the Clinch River Project, we recognized the need to formulate new program elements that will accomplish those objectives of the program that hinged on construction and operation of CRBRP.

In November 1983, Westinghouse recommended the following essential elements of a mission-oriented liquid metal reactor program:

- Maintain a strong LMR Base Technology Program by emphasizing key elements of current programs.

- Enhance international cooperation by participating in exchanges with foreign technology and demonstration plant programs.

- Confirm state-of-the-art components as well as operability and maintainability in a power plant environment by modifying FFTF to produce electricity.

- Verify the ability to license an LMR in the United States by completing the Construction Permit for CRBRP.

- Preserve the ability to accomplish future plant designs by documenting CRBRP key data and experience and completing certain key tests.

These objectives provide a new focus for a mission-oriented program that will advance the technology to the point where the private sector can make market decisions regarding future commercial development. I am pleased to note that significant progress has been achieved on a number of these key elements.

For example, in the area of international cooperation, progress had been made through exchange activities between Japan (MONJU) and the U.S. (CRBRP). Some detailed technology items have already been exchanged, and negotiations are in progress to provide for the use of some CRBRP hardware in MONJU, exchanges of specific and detailed design, manufacture, construction, startup and operation data, and exchanges of personnel.

An exchange with France to perform a detailed evaluation of the licensability of Super Phenix 2 in the U.S. could afford an additional opportunity to learn from overseas development. However, little progress appears to have been made on developing a meaningful cooperative agreement with the French. This is of particular concern in light of the steady progress of the French programs and their advanced stage of development.

Therefore, I recommend that this element of international collaboration be given further consideration as a part of the overall program.

With regard to establishing the licensability of LMRs, the recently issued findings of the Nuclear Regulatory Commission's Atomic Safety and Licensing Board demonstrated the licensability of CRBRP at the construction stage. This is a significant benchmark for future LMR plants.

Additionally, ongoing CRBRP termination activities and planned generic technology activities will accomplish the objective of preserving the ability to perform detailed design of future plants through documentation of CRBRP key data and completion of key tests.

The Department of Energy (DOE) has also preserved the ability to pursue modifications to FFTF for confirming component performance and plant operability in a cost-effective manner by storing CRBRP Steam Generator parts and materials for such potential future use.

DOE is currently formulating an Advanced Reactor Program to assure a strong U.S. design base. We believe the program is a good one and we have recommended some items to DOE to improve the program.

The draft Advanced Reactor Program provides a good start at establishing a strong U.S. design base by sponsoring competitive, innovative design studies and by developing some of the features and components utilized in low-cost LMRs employing passive safety features. To further focus the program, we recommended that the program include an expanded testing role for FFTF (as we had recommended previously), development of a reactor concept with an integrated fuel cycle utilizing oxide fuel, demonstration of key reprocessing technology for oxide fuel, and enhanced international collaboration (again, consistent with our prior recommendations).

Demonstration of long lifetime fuel systems and operation at a high capacity factor are essential roles for FFTF. These essential roles are included in the draft program. Moreover, FFTF can provide additional benefits to the program. Modification of FFTF to test key components and to provide electricity would provide essential endurance testing of U.S. designed plant components, especially steam generators, while at the same time generating needed operation and maintenance experience with an LMR in a power plant environment. Successful operation of the modified plant would provide the direct LMR experience which, when combined with the LMR experience being accumulated overseas, would sustain domestic utility interest in this advanced reactor type. This element can be added to the program in a cost effective manner by utilizing the electricity produced to offset the program costs.

The DOE program includes an Integrated Fuel Reactor (IFR) concept employing metal fuel as one innovative design. Our design work on low-cost plants has shown that the concept of co-locating the reactor, fabrication, and reprocessing facilities is also attractive when oxide fuel is employed. In fact, France and the United Kingdom have co-located reactors employing oxide fuel and small reprocessing facilities at Marcoule and Dounreay, respectively. Given the world-wide adoption of the oxide fuel system for both LWRs and LMRs, further development of IFR concepts employing oxide fuel should be a key part of the DOE program. This would also facilitate a direct comparison with the IFR concept employing metal fuel.

Operation of FFTF and development and operation of the Secure Automated Fabrication (SAF) line are key ingredients in demonstrating the oxide fuel cycle and they are included in the draft program. However, demonstration of closure of the fuel cycle also requires demonstration of the PUREX reprocessing technology for breeder fuels in a suitably sized facility. The Breeder Reprocessing Engineering Test (BRET) can provide such a demonstration. In addition, the co-location of FFTF, SAF and BRET would constitute a meaningful demonstration of an IFR concept employing oxide fuel. Therefore, we strongly recommend that BRET construction and operation be included in the DOE program.

FOCUS NEEDED, RATHER THAN RADICAL CHANGE

Much has been made lately of the idea that it is necessary to develop a radically different nuclear power plant design to resuscitate the nuclear industry. These calls for radical changes have created an atmosphere of over-reaction and tend to divert the DOE efforts to formulate a focused direction for reactor development in the U.S. Two factors are alluded to as the cause of the industry's malaise: cost and safety.

With regard to cost, it is the higher end of the statistics that we are seeing now that color everyone's perception. The long-delayed extreme examples are receiving the publicity. Other plants, started as projects at the same time, are now operating successfully. Although absolute cost reduction should, and is being pursued vigorously, I contend that the ability to predict that a plant will finally cost close to a given figure is a necessity for a decision to proceed.

Safety is also vital, but here I contend that the issue is not comparative safety among reactor alternatives. Rather, it is again the ability to predict that a given plant will be licensed without excruciating backfitting and re-analysis and consequent escalation of cost and schedule. Some recent bad examples of this process could lead to a fear that the end result could be in doubt, no matter what the expense. These cases are not a result of absolute safety per se--very similar plants are safely producing electricity at competitive cost.

The current lack of domestic utility interest in new nuclear plants is, in my opinion, due to a combination of lack of need for capacity and the high perceived financial risk to the utility that decided to build one. When the need for capacity returns--and it will, even if it is a decade or more away--the utilities must also be able to make a construction decision that is not literally one of "bet the company." This perception is one that must be removed in the interim.

Yes, we should work vigorously to address these problems and be ready when the need for capacity returns. Of course, the most cost-effective option when that happens may well be to complete some of the now suspended or cancelled plants. Thus, it goes without saying that continuing to address current issues, such as licensing reform, is vital. Beyond that, the picture world-wide supports the contention that the two best developed U.S. reactor types--light water (LWR) and liquid metal (LMR)--are excellent contenders on the world market. I believe that they should continue to be our highest priority, as any new type that we would begin with now could have no substantial leverage, either domestically or internationally, for literally decades. Our experience is that an absolute minimum of 15 to 20 years and billions of dollars would be required before essentially commercial offerings could be made of a new reactor type we would begin now.

Thus, I think the utility problems related to predictability of acceptable cost and licensability should be addressed in the order of priority of LWR's first, LMR's second. LWR's can be built to levels of acceptable cost and safety, as demonstrated by the 183 now in operation world-wide. Further work can be most useful, however, in improving cost and further reducing risk levels. LMR's can be built with acceptable safety, as attested to by the ten now in operation with more than 140 reactor years of operating experience, and the successful conclusion of the Clinch River licensing hearings for the construction permit. The long-range promise of this reactor type continues to justify a major program addressed to reducing costs and risks.

LMR...A PRACTICAL AND REALISTIC OPTION

Over the last two years, Westinghouse has been involved in a major review of its advanced PWR with eight leading U.S. nuclear utilities. We believe the directions for development of any reactor type is clear from what the utilities told us in these reviews. The utilities want a more certain future, both in a financial and licensing sense. They want, above all, a proven, tested design with the bugs worked out, a design that reduces up-front capital cost and lessens risk to shareholders and rate-shocked customers. We believe this means that we should make "the good" even better. We should work on the most proven reactor types to make them much less sensitive to financial risks. The solution will involve licensing reforms, packaging for assured construction schedules and ease of licensing, and improved safety, especially to the extent that it reduces the risk of licensing delays.

Westinghouse remains committed to a vigorous ongoing PWR development program that centers on quality assurance improvements, nuclear plant standardization programs and design and construction simplification.

At the same time, development of LMR's that are economically attractive, and that typically employ passive safety features has continued to receive a great deal of Westinghouse attention. And, we have already achieved success with our early design efforts.

The design of a low cost LMR with potential to produce electricity at costs competitive with light water reactors and fossil-fueled plants is possible now--even with the current low prices of coal and U_3O_8 with the Westinghouse Low Cost Plant design.

A new, compact plant arrangement designed by Westinghouse, featuring factory-fabricated modules and an integrated fuel cycle facility, has made it possible to project this cost-competitive, near-term LMR plant. Effective packaging and fewer systems allow for smaller buildings and less construction material. Systems are simple and easy to maintain. Modular construction will greatly reduce cost and investment risk by improving efficiency and shortening construction time.

With this innovative design, the power generation cost (capital, fuel, and operation and maintenance costs) for the Westinghouse Low Cost Plant is predicted to be competitive with that for today's fossil-fueled or light water reactor plants.

Plant safety is achieved through the use of both engineered features and passive features built into the Low Cost Plant design.

The plant employs all typical LMR plant engineered safety features. However, in the Westinghouse design, these engineered systems achieve an extremely high reliability because they are designed to work by inherent natural processes such as the principles of gravity and natural circulation.

In addition, passive safety features back up the engineered safety features, providing additional margins of plant protection and considerable time for corrective action. This means that even if the highly reliable engineered features should fail to operate, processes inherent in the plant design assure that the reactor is shut down and core cooling is maintained.

The engineered and passive safety features inherent in the Low Cost Plant design assure public safety and protect the owner's investment.

An integrated fuel processing facility guarantees a secure and reliable source of fuel for the Low Cost Plant at a lower cost than for coal plants and at costs projected to be competitive with light water reactors.

This facility is self-sustaining and insensitive to external cost changes or the availability of fuel cycle commodities. After the first refueling, no shipment of fuel is required. By virtue of its design and on-site location, the low cost fuel cycle is extremely diversion-resistant.

In addition, this fuel cycle can be adjusted to produce plutonium to match the plant's needs or to exceed them, as may be desired to support the future commercial nuclear market.

The low cost LMR design is built on existing technology and, except for light water reactors, requires less R&D than any alternative advanced concept. Therefore, Westinghouse considers this design to be a feasible near-term alternative. Of course, a demonstration project would be required before the plant is offered commercially. The Westinghouse Low Cost Plant is an inherently safe and low-risk option. It can provide a firm and practical base to meet our near-term and future energy needs.

SUMMARY

We believe the United States should devote the bulk of its limited reactor development resources to the highest priority projects--the LWR, which is already pre-eminent in the world market, and the LMR, which is the advanced reactor of choice among developed nations. The LWR effort would not involve substantial development funds, but does need government support on a policy basis along with some specially targeted development. The LMR needs continuity in the efforts under way to safeguard an investment that keeps us among the leaders in this type. Other reactor types should be the subjects of rigorous comparisons, but commitment to substantial development would be at the expense of higher priority efforts.

To further enhance the continuity of efforts underway, we urge consideration be given to appropriations for adequate funding in the following areas:

- The $20M for the Breeder Reprocessing Engineering Test (BRET) directed by the House Science and Technology Committee is adequate. However, we recommend that this funding be added to the DOE FY 85 budget rather than provided by reallocation within the budget.

- We recommend that $12M be added to the DOE FY 85 budget to further evaluate potential modifications to Fast Flux Test Facility (FFTF) to facilitate testing of key components in a power plant environment. These efforts would support a FY 85 decision for implementation of the modifications.

- And, we recommend increased emphasis be given to formulating additional new initiatives to enhance international collaboration on Liquid Metal Reactor (LMR) plants. This effort can be accomplished in FY 85 without increased appropriations.

STATEMENT OF DR. RAMY A. SHANNY, PRESIDENT, INESCO, INC.

Mr. Chairman and Members of the Committee: It is an honor and a pleasure to appear before you today. I am Dr. Ramy Shanny, President of INESCO, Inc., a privately financed and soon to be a publicly traded company that has focused all of its efforts on the engineering development of commercial fusion power. Prior to joining INESCO, I was Director of the Plasma Physics Division of the Naval Research Lab. Today, I want to acquaint you with INESCO's accomplishments and their potential scientific and economic benefits for the nation's fusion program.

The objectives of both INESCO and the U.S. magnetic fusion program are to attain ignition and controlled burn. Both INESCO and the DOE program utilize the same principles of physics, but differ in their engineering and experimental approach. To date, no machine, either in the U.S. or abroad, has accomplished controlled burn. In the U.S., no machine presently exists, and none is under construction, that could attain this goal. However, accelerated development of INESCO's propriety technology will benefit the nation by moving toward this goal through enhancing the cost-effectiveness of fusion ignition technology.

The key to INESCO's activity has been the earliest possible attainment of commercial fusion power. Since 1981, INESCO has expended more than $15 million in pursuit of private development of small scale fusion tokamaks. INESCO's emphasis has been a classic engineering approach toward the development of commercial fusion power. We are not a research institution. Indeed, our designs are premised on the knowledge of plasma physics derived from the DOE and international tokamak research programs. In this effort, INESCO has assembled a "critical mass" team of highly skilled engineers to translate conceptual ideas into practical engineering designs.

INESCO has already designed a family of compact water-cooled high strength copper alloy tokamaks which should attain ignition, and allow for the study of controlled burn, at fusion power output in excess of a several hundred MWth. These machines are far smaller and much less expensive than any of the tokamaks being developed or contemplated in the current DOE program.

Two unique engineering features have characterized INESCO's work, each of which is critical to the success of our compact tokamak machines. First, we early recognized that the success of high-field small machines would depend strongly on the attainment of magnet coil materials strong enough to support the high fields desired. To this end, INESCO undertook a major effort in the development of improved copper alloys of high strength and high electrical conductivity. INESCO also developed inorganic insulators, which are radiation resistent, for use in these high field magnets. This work has been amazingly successful. These breakthroughs have overcome the critical hurdles that previously existed to the attainment of fusion burn in a compact tokamak.

The second important and unique feature of our work has been the development of a fully synergistic and integrated computerized systems design code for machine design over a wide range of parameters. It is the kind of detailed parametric design code traditionally used in the aerospace industry, and we believe it is the most advanced design tool of its type in the fusion field.

All of our machine designs will be able to reach fusion ignition conditions and sustained burn in a deuterium-tritium (D-T) plasma under the standard confinement scaling laws obtained in the DOE program. INESCO's sustained burn would generate several hundred MW of fusion power over a machine life of approximately 1000 hours. INESCO's machines will provide adequate burn time to understand the best design for a practical fusion reactor.

This INESCO has already accomplished. But it is now at a critical point in its history, when engineering design must turn to fabrication. Although practically all of our technology development has been financed privately, such private financing obviously involves high risk and long term pay off. As a result, construction of INESCO's ignition test machines that are financed solely with private funds will require long lead time.

However, a one year cost-shared private and government funded program would combine the best features of entrepreneurial skills and public support. For a very modest governmental investment, a cost-shared program would provide the nation with a key technology that could accelerate substantially the attainment of fusion power.

The modest federal investment INESCO seeks is $2.5 million to accelerate fabrication and testing of the high strength, high conductivity water cooled copper magnet coils that it has developed and designed with private funds. INESCO would continue to apply private financing toward this program.

This approach already has been recommended by the House Science and Technology Committee in its FY 1985 DOE authorization bill. Moreover, it has been recommended by HS&T as a part of the Administration proposed budget level in magnetic fusion for FY 1985, not as an add-on to that budget.

Following completion of the fabrication and testing of these magnet coils, INESCO will be able to proceed with its program of developing a central facility for the testing of inexpensive tokamak machines. This central facility will serve as the testing ground for the repetitive demonstration and testing of several machines over a range of potential design parameters. This approach will allow experimental optimization of plasma performance by testing a number of varied machines. Each of these tokamaks will cost less than $10 million. In this way, if one machine's design is unworkable, or fails for any reason, another machine will be available with an alternative design. By this means all of the relevant physics of fusion ignition and burn can be explored at modest cost and in a relatively short time. At the same time, we will have tested such a variety of designs that a pratical fusion reactor can then be constructed.

As you may know, the Soviet Union is working actively on a program that utilizes small copper coil tokamaks. The Soviet program is also an engineering design program that could lead to ignition within several years. However, the Soviet Union will not be able to achieve sustained burn for two reasons: first, they have not developed the high conductivity, high strength copper coils, insulator technology and fabrication techniques that INESCO has designed; and second, they lack the overall infrastructure of the USA.

Thus, if INESCO's development program is carried forward expeditiously, the U.S. is likely to achieve the breakthrough of a sustained fusion burn before the Soviet Union. Moreover, apart from the international benefits, if INESCO's program proceeds apace, the results of its contributions to high field tokamak engineering will be of significant value to the U.S. mainline program as it proceeds toward development and design of the world's first tokamak fusion reactor.

Thank you.

STATEMENT OF REV. T. BYRON COLLINS, S.J., SPECIAL ASSISTANT TO THE PRESIDENT OF GEORGETOWN UNIVERSITY

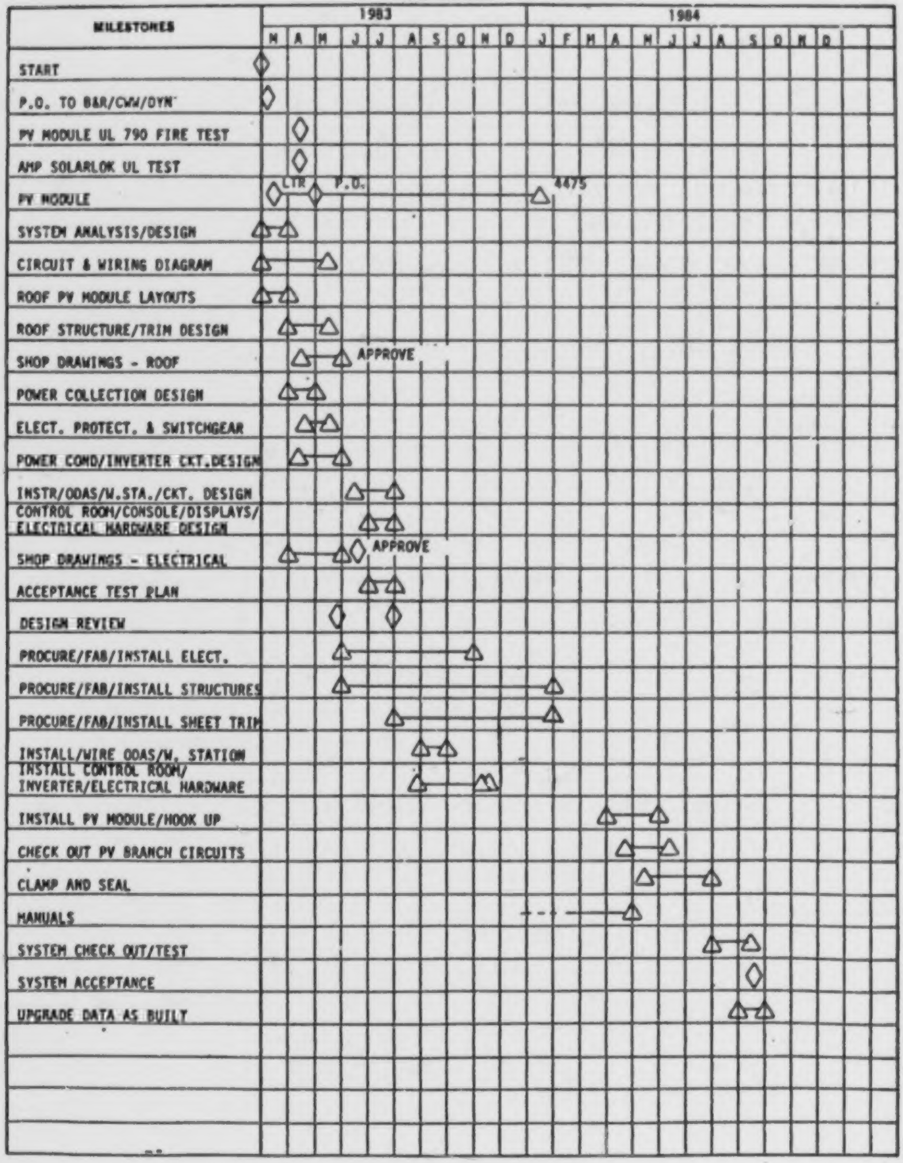
Mr. Chairman and Members of the Committee, I am Rev. T. Byron Collins, S.J., Special Assistant to the President of Georgetown University.

This is a brief report on the Photovoltaic Higher Education National Exemplar Facility (PHENEF). PHENEF will use sunlight to provide electricity for an education facility. This project has stimulated the mass production of photovoltaic flat plate roof shingles. Because mass production dramatically reduces the unit cost of these flat plate shingles, the University is now planning, from its own resources, to use photovoltaic flat plate shingles on its next academic facility.

PHENEF is on schedule and is expected to be completely operational by the end of this upcoming summer. (c.f. Exhibit) We will invite all the members of the Committee to a special dedication ceremony for this historic event.

On behalf of our President, Rev. Timothy S. Healy, S.J., I would like to express our gratitude for the Committee's continued interest and support of this program.

SCHEDULE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ROOF PV MODULE LAYOUTS
ROOF STRUCTURE/TRIM DESIGN
SHOP DRAWINGS - ROOF
APPROVE
POWER COLLECTION DESIGN
ELECT. PROTECT. & SWITCHGEAR
POWER COND/INVERTER CKT.DESIGN
INSTR/ODAS/W.STA./CKT. DESIGN
CONTROL ROOM/CONSOLE/DISPLAYS/ ELECTRICAL HARDWARE DESIGN
SHOP DRAWINGS - ELECTRICAL
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DESIGN REVIEW
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PROCURE/FAB/INSTALL STRUCTURES
PROCURE/FAB/INSTALL SHEET TRIM
INSTALL/WIRE ODAS/W. STATION
INSTALL CONTROL ROOM/ INVERTER/ELECTRICAL HARDWARE
INSTALL PV MODULE/HOOK UP
CHECK OUT PV BRANCH CIRCUITS
CLAMP AND SEAL
MANUALS
SYSTEM CHECK OUT/TEST
SYSTEM ACCEPTANCE
UPGRADE DATA AS BUILT

STATEMENT OF THE AMERICAN GAS ASSOCIATION

Introduction

Mr. Chairman and Members of the Subcommittee:

The American Gas Association (A.G.A.) is pleased to present this statement on the gas-related research and development (R&D) projects conducted or funded by the Department of Energy (DOE).

A.G.A. is a national trade association comprising nearly 300 natural gas distribution and transmission companies serving more than 160 million consumers in all 50 states. Collectively, these companies account for nearly 85 percent of the nation's total annual gas utility sales.

A.G.A. recommends the appropriation of $150 million for DOE gas-related R&D in FY 1985. Of this total, $34 million is for projects under the jurisdiction of this Subcommittee. These projects involve biomass, geopressured methane, and liquefied natural gas (LNG). This level of funding is justified by the long-term, high-risk nature of the projects involved, the benefits that will flow from R&D work on these projects, and the need to develop a wide variety of future energy sources.

On a matter also under the jurisdiction of this Committee, A.G.A. opposes the proposal of the Federal Energy Regulatory Commission (FERC) to raise revenue by imposing a system of user fees for regulated companies. We believe that Congress should maintain its oversight responsibility by appropriating all funds necessary for the FERC budget.

Long-Term, High-Risk Projects

A.G.A. agrees with the Administration that the federal government should fund only long-term, high-risk R&D that cannot be undertaken effectively by the private sector. The projects for which we seek funding meet this criterion. Because they are large-scale and involve very sophisticated and novel technology, the projects frequently require 10 to 20 years to advance from the experimental to the operational stage. These long time frames discourage private sector investment because the payback on investment stretches over such a long period.

Moreover, rate regulation imposes other disincentives that discourage even the most strongly motivated companies. If a project is unsuccessful, the expenditures may be disallowed in the rate base as "imprudently" made. This shifts the expense entirely to the shareholders. On the other hand, the benefits of a successful project are enjoyed by ratepayers via reduced rates. Thus, the shareholders have a greater potential for loss than gain, so the risk related to R&D investment greatly discourages the allocation of capital to such projects. Consequently, federal funding is needed to conduct these projects.

Need for Balanced Research

Natural gas provides space heating for 55 percent of the country's households, 40 percent of the nation's total commercial energy market, and accounts for 36 percent of the energy consumed by American industry -- a larger share than any other single energy source.

A.G.A. believes that consumer demand for natural gas clearly indicates that it is a valuable and desirable natural resource which merits a proportion of available R&D funds that reflects its usefulness to the nation.

Benefits of Gas-Related R&D

Initiating new technologies and improving existing ones will help to ensure the long-term security of plentiful gas supplies. Most major studies by industry and government currently forecast a national energy demand growth rate of 1.3 percent to 2.0 percent per year. Even at a rate of 1.5 percent per year, this means that, by the year 2000, United States requirements for energy will grow by about 30 percent over 1982 levels. Moreover, in 1982, the U.S. imported about 30 percent of its petroleum needs. The projected increase in energy demand calls for the development of domestic supplies to the fullest extent possible. The current and foreseeable supplies of domestic natural gas are plentiful, but access to these supplies must be aided by increased R&D activities.

Beyond the strategic benefits related to increased gas use, natural gas can contribute to improved air quality. Natural gas combustion emits virtually no sulfur dioxide, unlike other fossil fuels. The total natural gas system, source to end user, produces minimal undesirable atmospheric emissions and does not contribute to the deterioration of our lands and waters.

Funding Recommendations

A. BIOMASS: $20 Million

Supplemental methane supplies from biomass and waste conversion can add significantly to the total gas supply picture in the future since the supply of organic and waste materials is virtually unlimited. Developing energy from biomass also would promote the environmental benefit of productive use of currently "useless" materials. However, the quality of the gas produced and a suitable processing technique are important concerns that inhibit the widespread use of these potential gas sources.

The sources of biomass must be tested to determine the appropriate technology for producing high-quality gas from the resource; because the sources vary greatly in content, the technologies must be flexible. Processing techniques must improve biomass conversion technology to obtain maximum gas yields while reducing capital investment.

B. GEOPRESSURED METHANE: $11 MILLION

Geopressured methane is found either in a free state or dissolved in water and trapped in sedimentary rock at higher than normal pressures. One of the largest geopressured areas underlies a portion of the Texas and Louisiana Gulf Coast at depths generally between 5,000 and 25,000 feet, depending on the age and distribution of the sediments. Estimates of recoverable geopressured methane contained in domestic resources range from 25 to 1,200 trillion cubic feet (Tcf).

One of the difficulties encountered in producing geopressured methane is determining the degree to which brine is saturated with hydrocarbons. At low saturation levels, methane cannot be produced economically. If brine initially produced from a well is not saturated at reservoir pressure and temperature, it is unlikely that significant hydrocarbon production will occur from that reservoir. Therefore, determining the degree of methane saturation is crucial to deciding whether to attempt further production from any given well. However, discrepancies in well test results and laboratory studies raise difficulties in determining the level of saturation. Sample analysis techniques and test instrumentation for existing design wells should be upgraded to resolve these discrepancies.

Another difficulty arises because basic factors which heavily influence production capabilities are unknown. These include porosity, permeability, cumulative sand thickness, temperature, and pressure of the reservoir. As a result, the number of economic reservoirs which can be expected to occur is unknown. In addition, the technical and environmental aspects of the disposal of huge quantities of excess brine, from which the geopressured methane is extracted, need to be determined.

C. LIQUEFIED NATURAL GAS (LNG) SAFETY: $3 Million

The LNG resource base includes a very large worldwide gas reserve which is currently not committed to commercial use and is not expected to be committed in the near term. However, there is virtually no experimental data on the behavior of large spills of LNG. A.G.A. supports the construction of a national test site for evaluating spills of various materials, including LNG. One million dollars was appropriated in FY 1984 for this purpose. Because the estimated cost of the construction of an adequate facility is $4 million, A.G.A. recommends that an additional $3 million be appropriated. This would permit construction to be carried out. The research conducted at such a facility could simplify the safe handling of LNG and result in improved facility and storage tank design, thus making it easier to use LNG to supplement our gas supplies.

User Fees

As noted previously, A.G.A. opposes FERC's proposal to raise revenue by imposing user fees for various tariff filings.

FERC may charge user fees under the authority of the Independent Offices Appropriations Act of 1952 and Bureau of the Budget Circular A-25 which interprets that Act. The Act requires, however, that (1) the service be defined as narrowly as possible; (2) the beneficiary of the service be defined with similar specificity; (3) the fee must be justifiable and (4) the service must confer a special benefit on the user.

Our regulated natural gas companies oppose FERC user fees. The authority to collect and retain user fees which are cost based does not serve as an incentive for efficient operations nor as positive regulatory reform. Increases in operating costs are flowed through to the regulated entities.

FERC's mission is to benefit the public at large and no special benefit accrues to the regulated entity in particular. A quick look at the first few sections of the Natural Gas Act serve as evidence. Orders to import and export natural gas must be consistent with the public interest. Rates must be just and reasonable. New, enlarged or abandoned facilities must have a certificate of public convenience and necessity. Similarly, curtailment priorities set out in the Natural Gas Policy Act of 1978 protect the general public first and foremost. Overall it is difficult to discern the special benefit provided to an interstate pipeline which must be proven for FERC to assess these fees by law.

The rules for filing are designed primarily for the benefit of the public rather than the applicant. Indeed, FERC's mission under the Natural Gas Act is consumer protection, and all the Commission's regulations and proceedings arise from that premise. Therefore, tariff filings do not meet the special benefit criterion necessary for FERC to impose user fees.

The user fee proposal, by funding FERC activities through the fees, also reduces Congressional oversight capabilities. Through the appropriations process, Congress currently directs and restricts the activities of FERC according to the level of funds appropriated for particular activities. Without this oversight, Congress will exert less influence in guiding FERC activities in the fashion it deems appropriate.

Conclusion

A.G.A. believes that our plentiful supply of gas can be supplemented by developing technologies that improve our future gas recovery capabilities. The environment can benefit from gas use because gas is our cleanest fossil fuel. Furthermore, efficient use of gas can be encouraged by developing more sophisticated utilization technologies. However, because of the long time frames required to make these technologies operational, R&D projects must continue uninterrupted and funded at a level that allows full exploration of technological possibilities. The projects recommended for federal support can provide substantial supply, utilization and environmental benefits.

STATEMENT OF ANTONINE LAFATA SOTTILE, PH. DOCTOR OF ENGINEERING, WASHINGTON, DC.

I am Mr. Antonine Lafata Sottile
Ph. Doctor of Engineering

The technological, environmental and economical impacts of my Projects and Inventions, to solve forever problems of Energy and Economy, with my Petition to appropriate $. 25. Million, are illustrated in the joint 5-page Statement. They will assure to our NATION unlimited Profits and Leadership, next years, next Century, the Future constituting their Strength, since their importance increases by passing of time.

It has been published:"The Energy crisis is the ACHILLES' HEEL of AMERICA"
Achilles, the bravest of Greeks during the 10-year Troyan war, was the son of king Peleus and Thetis, a Sea-Nymph. His mother attempted to make the infant Achilles IMMORTAL, by dipping him into the river STYX. Since she held him by the heel, this part remained VULNERABLE.
PARIS, the son of Priam, king of Troy, killed Achilles with an ARROW directed to the heel.
Paris, in official mission to Sparta, while enjoying the hospitality of king Menelaus, eloped to Troy with the wife of Menelaus, HELEN, the most beautiful woman of that time.
The Goddess Aphrodite, grateful helped him since when ZEUS, the Chairman of Gods, feeling himself uncapable to decide to whom of 3. Goddesses: Hera, his wife; Athena, Goddess of Science; Aphrodite, Goddess of Love; to award the Golden APPLE of Discord, encharged Paris, noted for his beauty, to decide. Paris awarded the Golden APPLE to Aphrodite. Hera and Athena, in revenge, helped the Greeks to defeat and destroy Troy.

By this mythological historical episode, I yield to a speech of Patrick Henry, the year 1775, at the Virginia Convention: "I know of no-way of judging the Future, but by the Past".
According to my personal professional experience, since, before my 6-year Engineering University, I spent 8 years in Classical schools emphasizing languages, history, philosophy, economy, etc.,

I have stressed always the opportunity of requiring a several-year broad Classical skill to Candidates aspiring to Engineering Faculties. This requirement will easy their acquaintance with difficult concepts they will face in the University and in the Profession, and will avoid the danger to become ROBOT-alike professionals.

Concluding, different Roots are trying to direct destructive ARROWS to America's vulnerable HEEL: "Energy". For example I have specified: Otiose financial PALLIATIVES * PORK-BARREL Public Works * Staffers and Authorities, which undervalue and discard my Projects and Inventions*

Ref:
SENATE Record Part 3. Fiscal Year 1984
My Statement pages 1643 to 1653
with my Petition to Appropriate my Projects by $. 25. Millions, in order to assure to our NATION enormous benefits and Leadership next years, next Century.
Introduction again of the above TABLED PETITION for consideration in F.Y. 1985.

Honorable Chairman and Members of the Committee

By introducing again my Petition to Appropriate $. 25. Millions to my Projects, in order to START 2. Initiatives of emergency importance, I pray you to allow me to testify on the issues during current Hearings.

First Initiative: To ~~build~~ a WAGON EUREKA, electric Vehicle, prototype, my INVENTION, with its body at permanent levelness, and underframe engaged in successive downgrades and upgrades, assuring 4/5 of energy savings in Transportation by exploiting Gravity.
To take also into consideration my ATLAS interchange, replacing the obsolescent, current clover-leaf interchange in highways.

Second Initiative: To shuttle a SOLAR MIRROR Concentrator in Earth's Synchronous ORBIT, and try to reach at ground level efficiencies of 20. KWH./m^2 x day in Photovoltaic and Thermal Panels.

A lapse of 5. years would occur to perform this experiment through only one Solar Mirror
A lapse of 50. years would occur to settle

120. Solar Mirrors Concentrators in Earth's Synchronous Orbit and the required Solar Panels at ground level, according to my outline.

This outline would provide 8.76 T. KWH./year (T.=Tera =Trillion) = 87.6 Quads in obsolete Units. This amount would result above the total energy of every kind, used in one year, in recent years in the U.S.A.

During my past STATEMENTS, I STRESSED :
1) The TECHNOLOGICAL Impact of my Projects: based on the 7. Immortal Principles to solve forever problems of Economy and Energy, their Importance increases by passing of time.
For comparison, the current epoch of Computers based on VLSI. = Very Large-Scale Integration, with Silicon Chips, 6. Millimeters on a side, compacting inside 600,000. Transistors, will be replaced by a future epoch of Computers based on ULSI. = Ultra Large-Scale Integration with Silicon Chips compacting inside 1.Billion Transistors.

2) The ENVIRONMENTAL Impact of my Projects: by curbing current extermination of FOSSIL FUELS they contribute to save the habitability of our Planet.
Also these Fossil Fuels, saved from destruction, together with other Natural Resources, would be available in the future, as MONETARY Guaranty of the Dollar: Natural Resources STANDARD, displacing the current, obsolescent Guaranty of the Gold Standard . Present ALCHEMISTS may "CHANGE" ordinary Elements into GOLD by Fission, Fusion, or Impact in Heavy-ION Accelerators.

3) The ECONOMICAL Impact of my Projects: They generate WORKS' Opportunities and provide effective means to curb crises deriving from unemployment, inflation, recession, while otiose, ordinary financial Palliatives turn out counterproductive.
It is necessary to stress that the so-called PORK-BARREL Public Works are frequently BLAMED to be unproductive and provoking deficits and bankrupcies,
Unlimited Opportunities of Works, and PROFITS for thousand years, will be assured by my Projects and my Inventions.

THANK YOU
....

Mr. Antonino LAFATA SOTTILE
Ph. Doctor of Engineering

STATEMENTS to THE U.S.A.'s CONGRESS Years 1975-1983
on NATIONAL ENERGY INDEPENDENCE

Committees on APPROPRIATIONS - Energy and Water Development Sub-Committees Hearings -
12) Fiscal Year 1984. RECORD : SENATE Part 3. pp. 1643-1653 - March 24. 1983.
11) " " " " HOUSE " 7. " 874 -884 " " "

TECHNOLOGICAL IMPACT of my Projects : based on the 7. Immortal Principles to solve forever Problems of Economy and Energy, their importance increases by passing of Time. ENVIRONMENTAL IMPACT : by curbing current extermination of Fossil Fuels they will contribute to safeguard the habitability of our Planet. The saved Fuels in the Future would be available to the Natural Resources STANDARD, as MONETARY Guaranty of Dollars. ECONOMICAL IMPACT : Providing unlimited Opportunities of WORKS and PROFITS they would be appropriate to solve Economical Crises, while otiose Financial PALLIATIVES and so-called PORK-BARREL Public Works are blamed to be provoking deficits and bankrupcies

10) Fiscal Year 1983. RECORD : SENATE Part 4. pp. 2711-2717 - April 24. 1982
9) " " " " : HOUSE " 8. " 2586-2593 - " 1. "

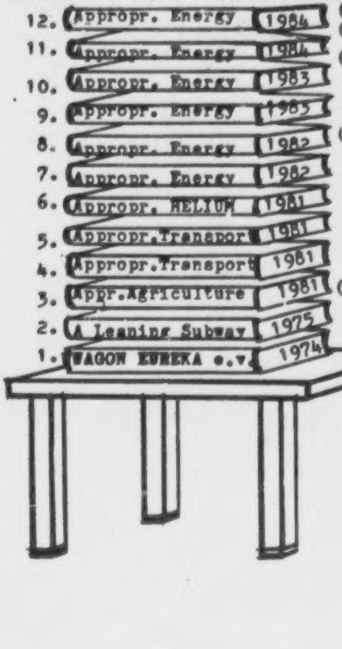
Five PATENTABLE Concepts stressed in my Projects - Solar MIRRORS Concentrators settled in Earth's SYNCHRONOUS Orbit to provide unlimited, clean, almost FREE Electric Energy- The intervention of Army Corps of Engineers, Five Power Administrations, Tennessee Valley Authority, etc., would save time, waiting for private initiatives only -
- Petition to avoid the dismantling of the Department of Energy.

8) Fiscal Year 1982. RECORD : SENATE Part 3. pp. 1932-1943 - March 24. 1981.
7) " " " " : HOUSE " 10. " 2402-2411 - " " "

Seven Immortal Principles : Solar Energy ; Electrification ; Electro-magnetic suspension-propulsion ; Savings of energy ; Tunneling generalization ; Gradients' utilization ; 7) Wagon EUREKA, electric vehicle, expansion -
- A.L.S. = Air, Land, Sea, Zero-fuel, transportation Immortal Plan -Twin Dirigibles = = LTA.: Lighter Than Air Craft - Plan 3-phase of Transports' electrification -
- Planets VENUS and MARS conditioned in a 50-year lapse - ATLAS Interchange replacing the Clover-leaf one, and assuring uninterrupted Urban and Highways TRAFFIC - RESUME'-

6) SENATE Committee on APPROPRIATIONS F.Y. 1981.-Hearings on Department of INTERIOR : RECORD Part 3. pp. 953 to 957 - May 16. 1980. Statement on HELIUM uses and storage. Next Century Helium STANDARD could replace Gold Standard as MONETARY GUARANTY of DOLLA

SENATE and HOUSE : TABLED STATEMENTS



Committees on Appropriations for Transportation:
(5.FY.1981.SENATE RECORD Part 2. pp. 144-150 Apr17.1980.
(4. " " HOUSE " " 7. " 615-619 " 16. "

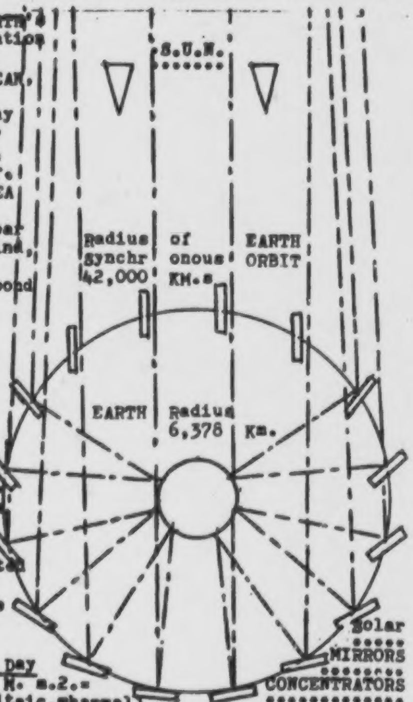
(3.FY.1981 SENATE Committee on Appropriations:Hearings on Agriculture - RECORD Part 3.-513 514 515 pp. April 2. 1980. Statement on Useful Industrial Products by HARVESTED Plants.

(2. SENATE Committee on Commerce, Science & Transport. Hearings on S.1632 & HR.8800 - Oct. 7-10 1975. Electric Vehicle R.D.& D. Act of 1975. RECORD 94-96 - pp. 161-164 :My Project "LEANWAY=A Leaning Subway Leanway's MOTTO:"To build and to operate 2. Subways, like the Washington Area Metro-Rail, by the BUDGET of only one." "To move 5. alike Subways by the ENERGY of ONLY ONE"

(1. HOUSE Committee on Science & Technology: Hearings on HR. 5470. June 3-6 1975. Electric Vehicle R.D.& D. Act of 1975. RECORD 27. pp. 728-740 -
My INVENTION: WAGON EUREKA, Electric Vehicle, assures Savings of Energy in the range of 4/5 in Transportation.
Wagon EUREKA keeps its body at permanent levelness (exploiting: Gyroscopic effect of Flywheels; LASER Beam Gyroscope; Resistance of Air at higher and highest Speeds, etc.)
while its UNDERFRAME, engaged in successive downgrades and upgrades,
provides FREE ACCELERATIONS.

Mr. Antemine Lafata Sottile
Ph. Doctor of Engineering

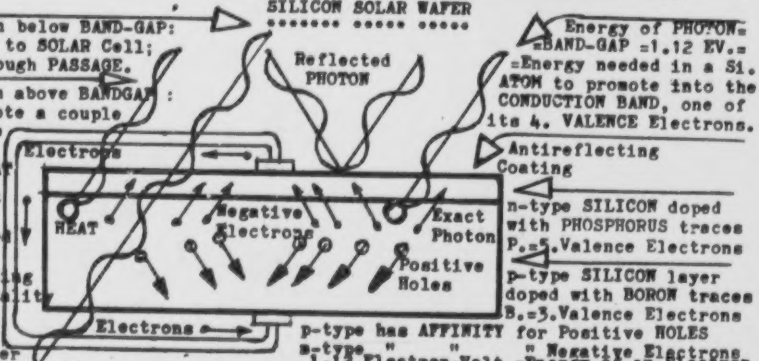
NATIONAL ENERGY INDEPENDENCE Project



SOLAR MIRRORS CONCENTRATORS settled in EARTH's SYNCHRONOUS orbit would assure SUN's radiation almost night-and-day on selected AREAS of EARTH surface, and provide UNLIMITED, CLEAN, near FREE Electric Energy.
PHOTOVOLTAICS' Efficiency = 5.KWh./m.^{2}x Day would result multiplied to 20. " ./". x " assuming exploitation of COGENERATED HEAT.
120. solar Mirrors concentrators in synchr. orbit, each one illuminating a 10. Km.^{2}AREA of Ground surface, at 20.KWh./m.^{2} x Day efficiency, would generate 8.76 T. KWh./Year That is above the total Energy of every kind, used last year in the U.S.A. -
8.76 Tera KWh. (T.= Tera =Trillion)correspond in Obsolete Terms to 87.6 QUADS -
140. Solar Mirrors in identical assumed settlement would generate 10.T.KWh./Year and Up, that is about the total Energy of every kind supposed to be used around year 2000. in the U.S.A.

One Million K.watt solar plant (1.M.KW.) by average INSOLATION =1.KW./sq.meter (1.KW./m.2.= below average Insolation in the U.S.A.), would require 1.Million m.2.= = 1.Km.square of photovoltaics to generate 5.M. KWh./Day, complying with Department of Energy's GOALS of 5.KWh./m.2. x Day, accounting with: exploitation of cogenerated Heat - solar panels pointed to south, and inclined by an angle equal to the Latitude of the site - eventual concentrators, mechanisms to track the SUN, etc. -
The multiplied efficiency = 20.KWh./m.2.x Day assumed in my PROJECTS would require 1./4 M. m.2.= =1./4 Km. square of solar panels (photovoltaic,Thermal) to generate 5. M. KWh./Day, as above, through a lower PEAK power capacity solar plant = 1./4 Million K.watt, accounting with:
exploitation of cogeneration - permanent insolation during almost 24.Hour./Day - - stronger insolation than average at ground level, (by example: in the range of Equatorial insolation) provided by MIRRORS CONCENTRATORS in SYNCHRONOUS ORBIT.

SILICON SOLAR WAFER



Energy of Photon below BAND-GAP: no energy given to SOLAR Cell; ineffectual through PASSAGE.

Energy of Photon above BANDGAP : 1.12 EV.to promote a couple of Electron-Hole Energy excess converted to HEAT

External Circuit through which, ELECTRONS trapped in the n-type Layer and exceeding electrical neutrality recombine with HOLES in the p--type Layer, under VOLTAGE BUILD-UP=.65 Volt in a SILICON Cell.

Energy of PHOTON= =BAND-GAP =1.12 EV.= =Energy needed in a Si. ATOM to promote into the CONDUCTION BAND, one of its 4. VALENCE Electrons.

Antireflecting Coating

n-type SILICON doped with PHOSPHORUS traces P.=5.Valence Electrons

p-type SILICON layer doped with BORON traces B.=3.Valence Electrons

p-type has AFFINITY for Positive HOLES
n-type " " " Negative Electrons

1.12 Electron-Volt =Energy of an Electron accelerated by a POTENTIAL of 1.12 VOLT

The SOLAR WAFER outlined here, was adapted from a Scientific American Oct. 1976 Issue

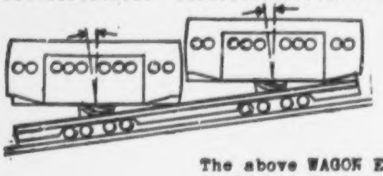
Mr. Antomine LAFATA SOTTILE
Ph. Doctor of Engineering

NATIONAL ENERGY INDEPENDENCE Project

WAGON EUREKA - Electric Vehicle, my claimed INVENTION from year 1974, claimed as the year when the CAR was REINVENTED.

Its BODY's Permanent LEVELNESS assured by GYROSCOPIC effect of FLYWHEELS. Also a LASER BEAM Gyroscope, electronic, light, low-cost, apt to DETECT in Nano-Seconds (billionths of second) changes of Level in the order of n.m. (nano-meters), could stabilize the BODY's LEVELNESS by Fluids and Servomechanisms. Also to exploit at high and highest Speeds the Resistance of Air, alike flying Aircraft.

WAGON EUREKA - ELECTRIC VEHICLE -

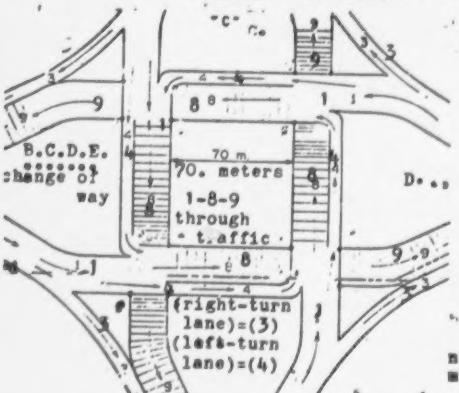


The FLYWHEELS utilized as well as accumulators and recuperators of Brakes' Energy, with the UNDERFRAME, engaged in successive downgrades and upgrades, to provide FREE positive and negative Accelerations, exploiting GRAVITY.

SAVINGS of ENERGY in the range of 4/5 assured in Transportation for thousand years

The above WAGON EUREKA's outlined Prototype, valid for Railroads, would be adapted, through varying SIZES, to Roads and to Travel at highest Speeds on the Electro-Magnetic field.

ATLAS INTERCHANGE : compact, with at-level, short right-turn and left-turn LANES. To replace at crossing of HIGHWAYS, ordinary, extended, costly, landscape obstructing Clover-Leaf Interchange, and to assure Highways, and Urban UNINTERRUPTED TRAFFIC.

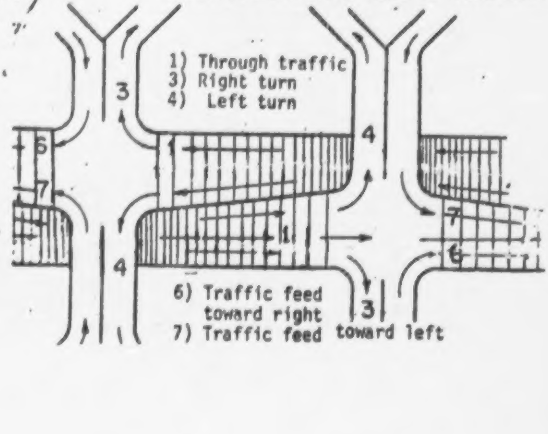

"C" C.
9
9
3
3
3
9
9
4
4
8
8
1
1
B.C.D.E.
change of
way
70 m.
70. meters
1-8-9
through
traffic
D. .
8
8
9
9
1
8
4
(right-turn
lane)=(3)
(left-turn
lane)=(4)
9
9
E.
(E)

At.La.S. Interchange : (Alternance Lanes System) in URBAN TRAFFIC could avoid the operation of 4. Semaphores at the intersection of 2. couples of uni-directional contrary-way streets.

Through Wagon Eureka's permanent Levelness, Passenger will appreciate alike feelings as in ordinary Elevators, nor CARGOES will receive damage.

By eliminating Signal-Controls the Traffic capacity of a Road at least will be doubled; uying and maintaining complicate Signal installations no more necessary; enormous amount of time, materials and fuel will be economize

HIGHWAYS' TRAFFIC FEEDER
(Junction)


3
1) Through traffic
3) Right turn
4) Left turn
4
6
7
1
1
7
6
4
6) Traffic feed
toward right
3
7) Traffic feed toward left

STATEMENT OF BERNARD S. LEE, PRESIDENT, INSTITUTE OF GAS TECHNOLOGY

For FY'85, IGT specifically recommends:

- $5 million for the collection of co-production data from geopressured design wells
- $1 million for expanded measurements of relative permeabilities and critical gas saturation in geopressured formations
- $1 million to expand the data base of the RENUGAS process
- $0.25 million to investigate the gasification behavior of biomass structural components
- $0.5 million for research on the catalytic reforming of biomass gasifier liquid products
- $1 million for biological gasification of woody biomass without pretreatment
- $1 million for a process research unit to convert giant brown kelp to fuels
- $1 million to study microalgae and microorganisms for producing fuels from biomass
- $1 million for the two-phase biological digestion of municipal sewage sludge
- $0.5 million for LANFILGAS process development
- $1 million for hybrid hydrogen cycles evaluation
- $4 million for thermal energy storage using composite molten-salt phase-change materials

Mr. Chairman and Members of the Subcommittee:

My name is Bernard S. Lee. I am President of IGT, a not-for-profit energy R&D organization in Chicago.

To meet its long-range energy needs and to preserve its environment, as well as that of its neighbors, America needs clean fuels which can be utilized at high efficiencies. We urgently need a mature energy policy that directs a balanced and sustained program to develop appropriate technologies to meet these needs. However, caught up in today's fast-paced microchip world in which innovations and obsolescence are measured in years rather than decades, we tend to apply the same criteria of quick turnovers to all national needs. That would be a mistake in the energy field. Energy policies must be established with long-term stability and security as top priority, paying special attention to the available and accessible energy sources, both in the U.S. and in specific geographic locations in the world.

From a world perspective, we should focus our attention on the steady growth in population, especially in developing countries. Nations that historically have existed on extremely low per capita energy consumption represent sources of explosive energy demand as they respond to internal pressures for even a modest improvement in living standards. It is pointless to expect those nations that have substantial energy resources and large populations to become significant energy exporters because their rising domestic demands will soon require all their supplies. For nations without substantial energy resources, growing populations will exert enormous pressure on the distribution of available world energy resources.

In the past, we oversold the nuclear option. Mesmerized by the promise of inexhaustible energy supply, we have disproportionately emphasized that option in terms of R&D expenditure in anticipation of unrealistically rapid deployment of nuclear installations. On the other hand, we undersold and neglected fossil fuel and renewable energy resources to the point where our largest indigenous energy resource is grossly under-utilized. The result is an unbalanced energy mix that will not lead to long-term stability.

We must have a maturity of energy policy for the United States which ensures the smooth flow of technology from the laboratory to commercial use and which realistically addresses future energy options. Although we fund large amounts of energy R&D, we fall behind many other countries which have adopted a policy of continuing, consistent and adequate funding of R&D to develop their indigenous energy resources. The International Energy Agency recently published a review of the 1982 national programs of R&D in the IEA countries. It is interesting to note that the United States is 9th in the ratio of 1982 government expenditures on energy R&D to gross domestic product, and 10th in the ratio of energy R&D to total primary energy demand. If nuclear R&D is excluded, the United States falls to 11th and 16th, respectively, of the 19 countries in the review.

I am deeply concerned by the complacency into which we have been lulled by the current energy situation. The issues on the public's mind are defense, toxic waste, entitlements, education, world peace, but not energy. Such misplaced priority is myopic. We know that fossil fuels will have to provide the bulk of our energy needs well into the 21st century, until renewable resources and, possibly, fusion energy can assume major roles. But, if we look at conventional oil and gas, warning signals are already evident. Domestic oil reserves peaked in the 1950's and have been declining ever since. The U.S. Geological Survey has warned that world oil resources may be even smaller than conservative estimates. Let us not forget that we still import large quantities of oil, and most energy analysts project even higher imports in future years. This has obvious implications for national policy on security and economic well-being.

The natural gas situation is similar. Proved reserves peaked in the mid-1960's and have dropped sharply since that time. Since 1967, yearly additions to reserves have been less than production for every year except 1981. Although indigenous natural gas supply is somewhat more favorable than oil supply, eventually we must turn to imports, development of unconventional gas sources, and synthetic gas to supplement natural gas supplies.

In this atmosphere of complacency, less support is also being given to efficient utilization technologies and applications, even though it has been amply demonstrated that conservation is capable of sharply reducing energy requirements and costs to the energy consumer. Renewable energy sources, too, are receiving less attention although these must become part of our future energy supplies.

A mature energy policy must preserve the environment. The acid rain issue is one of national and international concern. The expanded use of coal, our most abundant resource, must be anchored upon a technically sound and efficient base that complies with present and projected environmental regulations. The fundamental way to solve acid rain is first to totally remove sulfur and nitrogen from the coal by gasification and downstream processing and then to burn this clean fuel gas in advanced efficient combustion equipment. The more efficient the fuel utilization step, the less resource will be needed and the less pollutants emitted. Examples of coal gasification plus efficient utilization include cogeneration, combined cycle or fuel-cell power generation, industrial fuel gas, substitute natural gas, and chemical synthesis. Stop-gap measures to provide marginal improvements to alleviate immediate public pressures do not eliminate the root causes of acid rain, and therefore cannot succeed.

The current Federal R&D funding supports long-range, high-risk technologies. That alone is not enough. We need more than just basic research that enriches the scientific literature. Energy research is principally applied research; we must support the whole chain of development, from basic research to commercial applications. Yet, the current Department of Energy program limits technology development support only through the proof-of-concept step; the key process development and commercial demonstration steps are being left to private industry. However, these steps are the most costly and high-risk links in the chain. They require a time span of 10 or more years. In today's economic environment the private sector cannot undertake these risks. Unfortunately, the distinct possibility exists that world energy supplies will be interrupted at much shorter intervals than 10 years, and we as a nation will be caught unprepared. That risk is greater and will cost the nation more than the risk and cost of getting ourselves prepared through the implementation of a mature energy policy.

For FY 85, I support the gas industry recommendations for $150 million in DOE appropriations for gas-related R&D, plus $4 million for thermal energy storage. The following are specific R&D programs in which IGT is actively engaged and over which this Subcommittee has jurisdiction.

Geopressured Resources

In geopressured methane, $5 million is recommended for the collection of co-production data from existing design wells, and $1 million for accurately measuring compressibility, critical gas concentration, and relative permeability of brine to gas by upgrading laboratory equipment so that these data can be correlated with field data to permit predicting gas production from both geopressured and hydropressured wells.

Biomass

The $20 million program supported by the gas industry includes R&D in the thermochemical and biological conversion of biomass, the conversion of wastes, the growth and harvest of biomass and the support of regional programs. In biomass conversion, we highlight a $1 million recommendation to expand the data base of the RENUGAS process in an existing pressurized process research unit that converts biomass thermochemically to medium-Btu gas fuel or to synthesis gas, and $0.75 million to investigate the gasification behavior of biomass structural components and the catalytic reforming of heavy oils and tars produced in a biomass gasifier. Under biological conversion, we recommend $1 million to study the first known inoculum which can gasify untreated woody biomass to produce useful fuel gas, $1 million to establish digester performance of giant brown kelp in a process research unit, and $1 million to study microalgae and organisms for the production of fuels and chemicals.

In waste conversion, we recommend $1 million to construct and operate an on-site process research unit for the two-phase digestion of municipal sewage using a novel up-flow solids digester which has produced twice as much methane per unit of waste than heretofore possible, and $0.5 million to conduct tests on an existing landfill for producing gaseous fuels through a two-phase leachate recycle process.

Hydrogen

Hydrogen research through thermochemical or thermoelectrochemical cycles using nuclear fusion, fission or solar energy as a high temperature heat source is recommended in a $3 million program, of which $1 million is assigned to evaluating three promising hybrid hydrogen cycles based on copper, zinc, and cadmium chemistry.

Thermal and Mechanical Energy Storage

Energy stored as heat at elevated temperature, or thermal energy storage (TES), can later be used for on-site commercial or industrial applications. One thermochemical method to accomplish TES is the use of melted salts or salt mixtures.

IGT recommends, within the Thermal and Mechanical Energy Storage category, $4 million for the intensified development of thermal energy storage using composite molten-salt phase-change materials.

Thank you for the opportunity to present my views. I will be happy to answer your questions.

ATTACHMENT
TO STATEMENT BY BERNARD S. LEE
April 2, 1984

GEOPRESSURED METHANE

Production of hydrocarbons must exceed solubility in reservoir brine if production economics are to be favorable for the pressures and temperatures of wells tested to date. If the brine initially produced is not saturated at reservoir pressure and temperature, it is unlikely that greater hydrocarbon production will occur from that reservoir. It is therefore recommended that sampling, sample analysis, and test instrumentation for existing design wells be upgraded as appropriate to resolve existing discrepancies in well test results and laboratory studies of hydrocarbon solubility.

Funds should be appropriated for testing of the higher temperature, higher pressure Willis Hulin No. 1 well. In addition, the scope of research on energy production with high brine rates should be expanded to include hydropressured, as well as geopressured, reservoirs.

IGT recommends $5 million for the collection of co-production data from existing design wells and $1 million for adapting existing laboratory equipment for measuring critical gas saturation and relative permeabilities to gas and brine with the accuracy required to predict gas production from both geopressured and hydropressured wells.

BIOMASS

Biomass Conversion

o Pressurized steam-oxygen or steam-air thermal gasification is a very attractive route to produce useful energy from biomass. The existing IGT RENUGAS Process Research Unit (PRU) built with DOE funds was specifically designed to obtain accurate scale-up data on the thermal conversion of biomass via pressurized fluid-bed gasification to medium-Btu fuel gas or synthesis gas for the production of substitute natural gas, methanol, or other transportation fuels. The PRU operates adiabatically and is of sufficient size (12-in. I.D.) that gasification data can be accurately scaled to commercial size applications.

IGT recommends $1 million to determine reactant requirements, product specification, environmental impact and overall economics of this approach to biomass energy conversion using the high-pressure, adiabatic, steam-oxygen RENUGAS PRU.

o Woody biomass is considered to be the most appropriate feedstock for the production of substitute fuels or synthesis gas by thermal gasification. Most of the wood species have similar elemental composition, when expressed on a moisture and mineral matter free basis, but they differ in their structural composition, i.e., cellulose, hemicellulose, and lignin contents. Since nearly 80% of the biomass undergoes rapid devolatilization during thermal gasification, the distribution of these structural components determine the product gas composition. For example, lignins contribute to the production of direct methane while cellulose produces carbon monoxide and hydrogen. Bench-scale experiments are needed in existing laminar flow and thermobalance reactors to develop consistent solvent extraction methods to isolate the biomass structural components in different woody biomass species and to determine their devolatilization and char gasification behavior. Correlating the distributions of biomass structural composition and the devolatilized products would form the basis for recommending the most desirable feedstocks for medium-Btu or synthesis gas production. This information would also direct genetic engineers in the cultivation of new biomass species optimized for thermal gasification.

IGT recommends $0.25 million to investigate the gasification behavior of biomass structural components.

o Biomass gasifiers, the moving-bed gasifiers in particular, produce heavy oils and creosote tars which can cause mechanical operability problems as well as requiring special processing equipment to assure environmental acceptability of the process effluent. Biomass gasification processes would benefit from elimination of these heavy oil and tar products. Bench-scale experiments are needed to determine the effect of inexpensive and disposable alkaline metal-oxide catalysts on the decomposition of heavy oils and creosote tars into simpler hydrocarbon species. The bench-scale data would then be analyzed to identify effective catalysts and to develop process concepts for heavy oil and tar decomposition.

IGT recommends $0.5 million to investigate the catalytic conversion of biomass gasifier liquid products.

o IGT has developed the first known inoculum that can convert untreated woody biomass to methane by anaerobic digestion. This method of gasification could have the advantage of producing a high quality gas with few contaminants at a low cost. Woody biomass has a major advantage over other renewable energy forms in that it can be grown with high yields at a variety of locations in the U.S. Research should include a screening of a variety of different woody species to determine their biodegradability, gasification potential, and reactivity as a function of growth and harvest conditions. Laboratory and bench-scale studies should be conducted to determine the best reactor type and operating conditions for maximum conversion of wood to methane. This research will provide data needed for process design, scale-up, and economic assessment.

IGT recommends $1 million to genetically improve the IGT wood digestion inoculum, determine conditions optimum for its growth and metabolism, and develop a process to convert woody biomass to usable fuel gas.

o Giant brown kelp, grown in California coastal waters, has been shown to be highly amenable to anaerobic digestion for methane production. The species has demonstrated high methane yields and production rates during very stable fermentation in an upflow solids reactor. These laboratory studies need to be supported by testing in a continuous bench-scale process research unit to validate digester performance and evaluate equipment for continuous feed preparation and effluent handling. The final process scheme, selected as a result of these studies, will be operated as an integrated unit to permit optimization of the final conceptual process design and to provide a data base for detailed system analysis.

IGT recommends $1 million to design, construct and operate a process research unit to determine digester performance and perform process evaluations.

o Microalgae have a high potential for energy and chemical applications because they exhibit rapid growth, high yields, and most species are not needed for other applications in the U.S. A screening program is recommended to collect, analyze and evaluate the suitability of various microalgal species for conversion to methane. Ongoing growth programs should be identified as a source of microalgae with well-documented genetic and environmental data. The biogasification potential of these feeds should be examined using established anaerobic bioassay techniques to assess biodegradability and methane production to select a prototype species for further study. Process variables with the potential to influence methane production rates and yields should then be evaluated to develop a data base for bench-scale digester operation.

IGT recommends $0.5 million for bioassay screening and bench-scale digestion tests to determine the methane production potential of a wide variety of microalgae species.

o During the process of decomposing biomass or organic waste, microorganisms produce various products that may be useful as fuel or industrial chemicals. Two such well-known fuels are methane and ethanol. Based on work conducted at IGT, biotechnology research has demonstrated that production of other chemicals such as hydrogen, acetic acid, acetone, butanol, methanol, and processed lignin is possible. The production of these chemicals via microbial conversion of biomass and waste represents a potentially economic and environmentally desirable option. A balanced basic and applied research program is needed to develop the organisms and optimize the growth conditions for production of these fuels or chemicals.

IGT recommends $0.5 million to conduct basic and applied research on the biological coproduction of fuels and chemicals from biomass.

Waste Conversion

o Current IGT research in its two-phase digestion process with municipal sewage sludge has produced 7.5 cubic feet of methane for every pound of dry organic matter processed, about twice what current single-phase digestion technologies can produce. A novel upflow solids digester is showing high promise as the digester type to be used for processing sludge. The next logical step is to construct and operate a continuous, adiabatic larger scale process research unit. Continuous on-site testing is necessary to prove the upflow reactor concept.

IGT recommends $1 million to construct and operate an on-site PRU to provide proof-of-concept data for the two-phase digestion process for municipal sewage sludge.

o Two-phase biological digestion can also be used to recover energy from solid waste landfills. IGT's LANFILGAS process uses controlled recirculation of an aqueous phase bacterial culture to stabilize the organic waste within the landfill and to produce methane by two-phase digestion of leached organics in the recirculating liquid culture. The process can be applied to large as well as small landfills. Small-scale laboratory data indicate the technical feasibility of the concept. Further data are needed at the bench-scale level to study the effects of culture recirculation rate, digester temperatures, and hydraulic and solids retention times in the acid-phase and methane-phase digesters.

IGT recommends $0.5 million to conduct two-phase, leachate recycle, proof-of-concept tests on an existing landfill.

HYDROGEN

A leading candidate for the fuel of the future is hydrogen derived by splitting water by using high temperature energy from nuclear fission, fusion or solar sources. To accomplish this, it is necessary to continue development of thermochemical or thermoelectrochemical cycles. Three hybrid cycles have been identified on a laboratory scale as having the potential to accomplish efficient and, ultimately, cost-effective water splitting. The three involve copper sulfate-copper oxide, zinc sulfate-zinc oxide, and cadmium chemistry.

IGT supports $3 million to continue the work on hydrogen research and specifically recommends $1 million for systems evaluations, including reaction kinetics, process/energy source interfaces, product purification and engineering optimization of the cycles.

THERMAL AND MECHANICAL ENERGY STORAGE

Thermal Energy Storage

Thermal energy storage benefits both energy efficiency and capital and operating costs. It can recover and store the energy exhausted in many processes for reuse, thus reducing primary fuel requirements, and it can improve the load factor of utilities by reducing added capacity requirements. IGT is developing a family of phase-change composite thermal storage media that allows direct-contact heat transfer. This concept has a wide range of applications from thermal installations to utility load management.

Significant cost benefits have been projected for these composite systems compared to conventional sensible heat storage systems. Proof-of-concept testing is now underway for industrial applications. Expanded R&D is needed in the identification of technical and economic goals for potential markets, measurement of physical and chemical properties of potential media materials, optimization of media thermal and physical behaviors within expected operating conditions, media selection/development to fit application temperatures and operating requirements, and study of materials compatibility between media, containment, working fluids, and auxiliary components.

IGT recommends $4 million for the intensified development of thermal energy storage using composite molten-salt phase-change materials.

SUBCOMMITTEE RECESS

Chairman HATFIELD. The subcommittee will recess until 2 p.m. this afternoon.

[Whereupon, at 11:25 a.m., the subcommittee was recessed, to reconvene at 2 p.m.]

(AFTERNOON SESSION, 2:10 P.M., THURSDAY, APRIL 5, 1984)

NONDEPARTMENTAL WITNESSES

CALIFORNIA WATER RESOURCE DEVELOPMENT PROJECTS

HEARING PROCEDURE

Senator WILSON [presiding]. Good afternoon, ladies and gentlemen.

We will proceed. This is the Subcommittee on Energy and Water Development of the Appropriations Committee.

I am Senator Pete Wilson. I am not a member of this committee, but we are going to begin the hearing without Chairman Hatfield and, hopefully, a member of the committee will arrive shortly. Senator Hatfield is at the White House where they are in negotiations on the budget. In any case, we will proceed until we have heard from all scheduled witnesses. It may be that the staff will have to take testimony later on, but we are grateful to all of you for coming.

It is my pleasure now to recognize my distinguished colleague and friend from California, our senior Senator, Senator Cranston, who has a statement which he wishes to make and then he is also late for a meeting, so he will then be excused.

Senator Cranston.

STATEMENT OF HON. ALAN CRANSTON, U.S. SENATOR FROM CALIFORNIA

Senator CRANSTON. Thank you very much, Mr. Temporary Chairman. [Laughter.]

Senator WILSON. Temporary member.

Senator CRANSTON. I appreciate this California collaboration, Senator, and I am grateful for this opportunity to appear before the Senate Appropriations Committee once again to testify, and I will do this very briefly, in support of fiscal year 1985 funding for Corps of Engineers and Bureau of Reclamation programs in the State of California.

As you are aware, the Reagan administration is requesting $95 million for Corps general investigations and construction work and just over $161 million for Bureau of Reclamation programs in California in the coming fiscal year. The California Water Commission and the California Marine Affairs and Navigation Conference, as in past years, have carefully reviewed the administration's budget requests and are seeking modest increases. The California Water Commission is asking for an additional $26,243,000 from the Corps and an additional $11,912,000 from the Bureau. This represents about a 15-percent increase for California water projects.

This afternoon you will be hearing from representatives of the California Water Commission, the California Marine Affairs and Navigation Conference, the California Reclamation Board, individual ports, irrigation districts, flood control agencies, and local governments, as well as Members from the House delegation detailing the need both for those items in the administration's budget and for specific increases. Many of these increases are to permit ongoing studies and construction projects to proceed on schedule.

I have detailed testimony about various projects that I will submit for the record. Just let me say that I think the following in particular, but this is not an exclusive list, merit great support: the Santa Ana River main stem study, the Guadalupe River study, the Caliente Creek study, the Sacramento River bank protection construction project, the coast of California storm and tidal waves study, the Oceanside sand bypass work under the Corps' operation and maintenance program, and the New Melones Lake project. And there are many others beyond those that I support.

Pete, thank you very, very much.

Senator WILSON. You are entirely welcome and thank you very much, Alan.

[The statement follows:]

STATEMENT OF SENATOR ALAN CRANSTON

Mr. Chairman, I appreciate the opportunity to appear before the Senate Appropriations Committee once again to testify in support of Fiscal Year 1985 funding for Corps of Engineers and Bureau of Reclamation programs in the State of California.

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Santa Ana River Main Stem (Corps study)

Since a survey report was completed in 1975 and Congress authorized phase 1 work, the Corps has been engaged in planning and engineering work for flood control improvements on the main stem of the Santa Ana River. Orange County below the Prado Dam on this river faces the most serious flood threat in the western United States. In January 1982 the Chief of Engineers approved a report proposing a project for the Santa Ana River Main Stem including enlargement of Prado Dam, improvements along Oak Street Drain, Santiago

Creek and the Lower Santa Ana River and construction of Mentone Dam. There is unanimous local support for the project, except for the Mentone Dam unit about which questions have been raised by certain water interests in San Bernardino County. As a result, Congress last year directed the Corps to look at alternatives to Mentone Dam. The Corps reprogrammed a portion of its FY 1984 Santa Ana River Main Stem appropriation for this purpose, thereby reducing the funds available for the rest of the engineering work. The Corps thus needs an appropriation of $3.5 million -- as opposed to the $2.5 million in the Administration's budget -- to proceed with engineering work at a pace that would permit completion of phase II general design memorandum on schedule in 1988.

Guadalupe River (Corps study)

The Guadalupe River and adjacent streams study includes the Guadalupe River and Coyote Creek, the two main waterways that flow through the densely populated area of Santa Clara County. Historically these waterways have flooded the downtown areas of San Jose and Alviso. The local governments do not have the capability of providing the necessary protection. Flooding in 1982 and 1983 adjacent to Coyote Creek reemphasized the need for continuation of a Corps study to provide meaningful flood protection for this area. Last year Congress provided $265,000 to maintain the schedule necessary for completion of the Guadalupe River feasibility report and environmental impact statement in late FY 1984 and to reevaluate flooding along Coyote Creek. But the Administration has failed to include any monies in its FY 1985 budget for the completion of the Coyote Creek study, and subsequent conclusion of the overall investigation. The serious threat of flood damages has prompted the local community to initiate a local project on Coyote Creek in anticipation of future federal participation. Nearly $3 million in local monies is being spent on planning, design and construction on Coyote Creek in 1984. However, without federal assistance the needed flood protection cannot be achieved. A federal appropriation of $145,000 for the Guadalupe River study in FY 1985 would permit the Corps to complete its analysis along Coyote Creek and complete the overall Guadalupe study in 1985. I hope this budget increase can be accommodated.

Caliente Creek (Corps study)

Similarly the Administration has not included any monies in its FY 1985 budget for continuation of the Caliente Creek study of the Corps. The Caliente Creek basin historically has been subject to heavy flooding and in the past five years the area experienced in excess of $50 million in flood damages. The preliminary findings of a Corps Reconnaissance study were not favorable with regard to a dam and reservoir project; however, Kern County is convinced that a project can be justified on the basis of new hydrological data and flood damage information. The county is committed to providing flood protection for the communities of Lamont and Arvin and will comply with whatever federal policy is established for cost sharing on the studies and any future project construction. An appropriation of $250,000 in FY 1985 would permit the Corps to continue its study of Caliente Creek to identify a feasible means of flood control.

Sacramento River Bank Protection (Corps construction)

The Administration has requested $2.5 million for the Corps Sacramento River Bank Protection project. This money would be used for bank protection works between Sacramento and Collinsville, the first priority area. At present, the environmental impact report is being prepared on a second area in Upper Butte Basin. The report is expected to be completed in November 1984 and additional bank protection work undertaken if funding is available. The California Water Commission and Sacramento River area landowners are seeking an additional $1.5 million -- or a total appropriation of $4 million -- in FY 1985 to expedite work along the seriously eroded banks of the Upper Butte Basin. The State of California is providing one-third of the funds for this project and is prepared to proceed at the $4 million level. In light of the state's ability to participate and the fact that this area cannot tolerate another rainy season without bank protection, I hope that the Committee will augment the budget for earlier completion of the project.

Coast of California Storm and Tidal Waves (Corps study)

The Administration has requested $700,000 for the continuation of the Corps Coast of California Storm and Tidal Waves study. FY 1985 would be the third year of a six year investigation of shoreline erosion along the southern California coast between Dana Point in Orange County and the San Diego/Mexican border. The study, which is addressing coastal erosion problems regionally, is needed to establish the data base for a shoreline nourishment program to preserve Southern California's famous beaches. Because of the interest of other coastal California communities, the Corps has agreed to expand the study to include the Ventura-Santa Barbara area and Monterey Bay. With the expanded scope of the study, the Corps actually needs an appropriation of $1.5 million in FY 1985 to keep the study on schedule. I urge the Committee to augment the budget for this project as requested by Southern California communities and the California Marine Affairs and Navigation Conference.

Oceanside Sand Bypass (Corps operation and maintenance)

This Committee has been very helpful in the past with respect to the Corps Oceanside Sand Bypass project. I hope the Committee will act favorably again this year. As you'll recall, federal construction of a breakwater at Camp Pendleton located immediately to the north of Oceanside, caused this resort community to suffer the loss of its sandy beaches. In the past, the beaches have been replenished through periodic maintenance dredging of Oceanside Harbor. Construction of the sand bypass project will provide a cost-effective alternative to dredging, reducing channel maintenance costs over the long term. Construction of the discharge pipeline for the project is imminent and the Corps anticipates completion of the entire development phase including the discharge system, barge mounted jet pump, and two jet pumps in the entrance channel by December 1984. An appropriation of $1.5 million in fiscal year 1985 as requested by the City of Oceanside and the California Marine Affairs and Navigation Conference is needed to complete the installation of the development phase and to operate, maintain and monitor the system in FY 1985. I urge the Committee to add the necessary monies to the Corps operation and maintenance budget to keep work on the Oceanside Sand Bypass project moving forward in a timely fashion.

New Melones Lake (Corps construction)

The Administration has requested $4.5 million in fiscal year 1985 for the New Melones Lake project. Of this amount $3.9 million is for the construction of administration facilities and the remaining $600,000 is for recreation. Now that construction of the dam itself is complete, Stanislaus, Calaveras, Tuolumne and San Joaquin Counties are particularly eager that the federal government fulfill its commitment to provide recreation facilities at the lake and on the downstream reaches of the Stanislaus River in accordance with the Corps master plan of 1977. I understand the $600,000 in the President's budget is inadequate and that as much as $3 million more may be needed for nine sites. The California Water Commission is considering augmenting its budget request. I hope that this Committee will also review funding for the New Melones Lake and provide an amount which will expedite completion of all features of the authorized project.

Mr. Chairman, I have touched on just a few of the many meritorious projects in California about which the Committee will be hearing today. There are of course other projects which I support such as the Wildcat and San Pablo Creek flood control project, the deepening of the Stockton Channel which will be completed with FY 1985 funding and the Bureau's San Joaquin Valley Conveyance investigation which is now in its second of three years. There are many other worthwhile projects. Mr. Chairman, success in solving the State of California's water supply, flood control and erosion problems and port development needs can only be sustained through the continued cooperative and coordinated efforts of local, state, and federal agencies. Federal assistance remains perhaps the most vital. Thus, I urge the Committee to give thorough consideration to the requests Californians will be presenting today. I will deeply appreciate your help as will the people of California.

STATEMENT OF HON. PETE WILSON, U.S. SENATOR FROM CALIFORNIA

Senator WILSON. Now let me begin by thanking you, all of you, for being here today as you begin your hearings on proposed budget estimates for energy and water development programs in the State of California for fiscal year 1985.

This afternoon we will hear from a number of distinguished Californians. Among that group will be representatives of the California Water Commission and the California Marine and Navigation Conference. Both of these fine organizations have been extremely helpful to me and my staff in preparing for these hearings and I know that you will give full consideration to the recommendations they will make.

Parenthetically, I want to tell you that your own staff has done a superb job for you in being responsive to a crush of requests for time and information. My staff and I appreciate their skills, as well as their patience.

The projects you will hear about today will, as you well know, serve a variety of beneficial purposes. There are projects recommended which will help to conserve water and assist in developing municipal and industrial water supplies. Other projects will help irrigate agricultural lands, provide hydroelectric power and benefit recreation, and fish and wildlife management.

Last year, I also emphasized the need to assist in preventing erosion and flooding such as California had experienced from violent storms in 1982 and in early 1983. Since then, my State has had the chance to dry out; nevertheless, the planning, engineering, and construction needed to avert such disasters in the future are still a large and important part of the requests you will hear today.

NEED FOR NEW WATER DEVELOPMENT

This year I would also stress to you the continuing needs of my great State for new water development, and the conveyance facilities to make that water useful to our farms, businesses, and urban areas.

My concerns for new water development are reflected in my support for $1.5 million for the Santa Margarita project, $2.5 million for the Cottonwood Reservoir, and $3.5 million for the Auburn Dam.

The need for additional water in California is well documented, as well as the need for additional conveyance facilities to deliver it. I would particularly like to draw the committee's attention to the $357,-

000 being requested for the San Joaquin conveyance study, which is a vital step in ultimately bringing much-needed and presently available water to the eastside of Fresno, Madera, Tulare, Kern, and Kings Counties. This area is plagued with a 1.5 million acre-foot annual overdraft of ground water, and over 440,000 acres of highly productive land will ultimately be removed from production unless supplemental water is provided.

I would also support and recommend to the committee the current construction funding recommended by the administration including $74.763 million for completion of the San Felipe unit to the fast-growing Santa Clara Valley area, and $11.553 million for the completion of the Tehama-Colusa system in northern California.

WATER PROJECT BENEFITS

In the area of water development, I think it is important to remember the benefits of the projects as well as the costs. California agriculture has been a real beneficiary of water projects. In recent years California farmers have averaged $14 billion of annual crop and livestock sales, of which more than one-third is dependent on Federal water projects. Roughly $4 billion of our agricultural sales have been in exports—and between $1 and $2 billion of that annually are attributable to Federal projects.

I also think it is important to acknowledge that an abundant supply of food and fiber is not the only national benefit of projects, and that hundreds of millions of tax dollars flow into the Treasury each year as a result of our increased farm production.

Clearly the returns to the public from these projects far outweigh the costs, considering that water users also directly repay a share of project costs.

Certainly, a number of persons have focused increasing attention on the low pricing or underpricing of water from some Federal projects, and these concerns are worthy of further study. I support the ongoing efforts by the Bureau of Reclamation to update and index its water contracting procedures. But I would not want this controversy to detract in any way from the value of further investments in needed water development.

California is aware that its water project appropriation needs are in direct competition with those in all other areas of our Nation, and that increasingly it will be called upon to bear a greater share of these responsibilities at the State and local level.

I think I can clearly say today that California is willing to carry its share, and we hope that Congress will be ready to meet its proportionate obligations as well.

BUDGETED PROJECTS

The President's budget includes funding for a number of worthy projects. I am expecially pleased to see amounts budgeted for the following projects.

[The information follows:]

Cache Creek, $450,000.—Funding allows the Corps investigation to continue to address the erosion problem in Capay Valley.

San Luis Rey River flood control, $5,000,000—This project was proposed as a new construction start in fiscal year 1984. This funding will allow the construction of a single levee to begin.

Los Angeles County drainage area, $450,000.—Continuation of Corps investigation of problems throughout the Los Angeles County drainage area.

San Luis unit, $3,338,000.—Bureau of Reclamation will continue design data collection for San Luis unit.

Sacramento River—Chico Landing to Red Bluff, $2,000,000.—Funds will be used for engineering design and construction of Chico Landing to Red Bluff bank protection works which fell behind schedule during the last few years.

Redbank and Fancher Creeks, $900,000—Will allow the timely progression of this flood control project.

San Francisco Bay to Stockton ship channel, $18,400,000.—This appropriation will allow the completion of the Stockton portion of this project, under budget and earlier than expected.

Oakdale Irrigation District, $6,500,000.—This loan assures the improvement and rehabilitation of the present irrigation network.

San Joaquin River basin comprehensive, $445,000.—This includes $100,000 for Tule River, $130,000 for Kaweah River, and $215,000 for lower San Joaquin River.

New Melones Lake, $4,500,000.—I may support a higher appropriation for this project. At a later date, I will submit to the committee a letter describing the circumstances surrounding the funding for this project.

Corps of Engineers general investigation—Survey

Calleguas Creek	$320,000
Dry Creek (Sacramento)	150,000
Morrison Creek	500,000

Corps of Engineers—General

Cucamonga Creek	$1,453,000
Fairfield vicinity streams	1,200,000
Lytle and Warm Creeks	200,000
Merced County streams	4,000,000
Sacramento River flood control project	250,000
Sweetwater River	4,000,000

Corps of Engineers—Operation and maintenance

Los Angeles/Long Beach Harbor	$600,000
Mojave River Dam gates	360,000

INCREASE REQUESTED

Senator WILSON. There are other projects which, although included in the President's budget, I think are in need of a slightly higher level of funding.

[The information follows:]

Santa Ana River mainstem (from $2.5 to $3.5 million).—This $1 million will cover the costs of a Corps study of alternatives to the proposed Mentone Dam feature of the Santa Ana project. This study was ordered by the supplemental appropriations bill last year, Public Law 98-181. Without this increase, the project could slip by as much as 1 year.

Santa Ana River and Orange County—Interim 3 (from $300,000 to $550,000).—This increase will enable the Corps to identify a solution for a major flood control problem in the Huntington Beach area, which was heavily flooded last year.

California storm and tidal waves study (from $0.7 to $1.5 million).—Interest in this study has grown as other California coastal communities have expressed interest to the Corps. The increase will allow the Corps to expand the study, without falling behind schedule.

Wildcat and San Pablo Creeks (from $0.5 to $1 million).—Increase allows the intiation of construction of the Wildcat and San Pablo Creeks flood control project. The project is needed for the social and economic welfare of the area.

Sacramento River bank protection (from $2.5 million to $4 million).—This project has not kept pace with need and this funding request will allow additional units of the bank protection project to be completed.

UNBUDGETED PROJECTS

Senator WILSON. The final category of projects I will mention are those which have not been recommended for funding at all. I would like to ask the committee's consideration of the following projects.

[The information follows:]

Caliente Creek, $250,000.—The $250,000 appropriation for Caliente Creek will allow the Corps to proceed with the investigation as soon as the Corps completes the reconnaissance report in fiscal year 1985. Caliente Creek has broad local support and local officials are prepared to comply with congressional cost-sharing for the feasibility studies.

Guadalupe River, $145,000.—Flooding in 1982 and 1983 adjacent to Coyote Creek reemphasized again the need for flood control facilities in highly urbanized Santa Clara County. Funding for the Guadalupe River investigation will complete analyses along Coyote Creek and complete the overall study in fiscal year 1985.

Walnut Creek basin, $200,000.—Contra Costa County is formulating the flood control projects in the Walnut Creek basin. This appropriation allows the Corps to review the proposed projects to determine the Federal interest.

United Water Conservation District, $2.5 million.—This appropriation allows the district to proceed with the design and specifications of the project and construction of a 70-acre desalting basin. The project will prevent further salt water intrusion of the ground water aquifers in Ventura County. This application is now being reviewed by the Bureau of Reclamation and is expected to be approved by the Department of Interior in time for funding. It is my understanding that funds are available within the President's budget to accommodate this write in.

Santa Ana watershed, $5 million.—The Department of Interior has approved the loan application for the Santa Ana watershed. This appropriation will allow the authority to initiate the construction of the gravity pipeline. The authority will use its own funds for design. Again, it is my understanding that funds are available within the President's budget to accommodate this write in.

Senator WILSON. In solving the dilemma of too many requests and too little money, this committee must also factor in the cost of not spending Federal funds. You know better than I that appropriating funds for Federal projects in many cases means appropriating funds for prevention—that is, to avoid spending much, much more at a later date.

The fairness of this committee in matters of this kind has been evident in the past, and I know that you will give these recommendations your full consideration.

I want to emphasize that I understand what a difficult task you and the other committee members are facing, especially this year. With all the concern about the deficit, about Federal spending reductions, nobody in this room expects to get everything they are asking for. We recognize that California requests for water project funds must compete with those of every other State. And I have told my fellow Californians that increasingly they will be called upon to bear a greater share at the local level. California is willing to accept its share, and we hope that Congress will be ready to meet its proportionate obligations as well.

With that, we will proceed now to hear from Members of Congress who are assembled and then allow them to go on to their other duties.

First I call upon the Honorable Glenn Anderson.

PORTS OF LOS ANGELES AND LONG BEACH, CALIF.

STATEMENT OF HON. GLENN M. ANDERSON, U.S. REPRESENTATIVE FROM CALIFORNIA

Mr. ANDERSON. Thank you, Mr. Chairman.

I appreciate the opportunity to testify on some very important civil works projects affecting two of the world's greatest ports, Los Angeles and Long Beach, and I am pleased to announce that I have sitting in the audience here today from the Port of Los Angeles Mr. Ed Gorman, the chief harbor engineer; Joan Milke-Flores, a city councilwoman, city of Los Angeles; and from the Port of Long Beach I have Commissioner David Hauser, James Gray, Charles F. Connors, Travis Montgomery, and Lee Hill. There may be others, but I know these people are here.

At the outset, Mr. Chairman, let me just say that my testimony probably should be considered in addition to that submitted by the California Marine and Navigation Conference.

CUSTOM RECEIPTS

As you well know, Mr. Chairman, seaports throughout this country are a vital link in achieving economic growth and are essential to both our domestic and international commerce. Although seaports do provide significant economic and transportation benefits and meet important national defense needs, they are directly responsible for producing tremendous revenue for our Federal Treasury.

As a matter of fact, during hearings at the Public Works and Transportation Subcommittee on Water Resources in March 1982, the Director of the Office of Inspection at the U.S. Customs Service estimated that of the $9.2 billion collected by Customs during fiscal 1981 in duties, taxes, and fees, $4 to $4.5 billion were collected from commercial cargo arriving by sea.

I am proud to point out to the subcommittee that of this $4 to $4.5 billion, the ports of Los Angeles and Long Beach generated well over 25 percent of it, over $1.136 billion.

Improvements are needed at the Los Angeles-Long Beach Harbor complex and are badly needed now in order to accommodate the enormous growth of traffic expected in future years. Unfortunately, the fact remains that the longer it takes the Corps and the Congress to implement the ports' modest funding requests, the chances greatly increase that they will not be able to satisfy our trading requirements in the near future.

Today, I will concentrate my views on the need to fund two vital studies which would provide important data when planning future port developments and both of our ports strongly support these studies.

LOS ANGELES-LONG BEACH HARBOR STUDIES

The first study is the Los Angeles-Long Beach Harbors study initiated in 1964. Phase I, which is scheduled for completion this year, will help better determine navigational channels and land transportation and cargo-handling requirements through the year 2020. Phase II, in which $1 million is requested, will center around continued model testing and a computerized ship navigation study.

Second, the Corps has requested $130,000 to maintain the model of San Pedro Bay at Vicksburg, Miss. This money provides for maintenance only and permits no testing to occur. I urge you to approve the ports' recommendation of appropriating an additional $1.2 million, thus enabling a 5-year study of tidal circulation and wave energy in San Pedro Bay to continue. This work would be done at the U.S. Army Waterways Experiment Station in Vicksburg, Miss., which houses the Los Angeles-Long Beach Harbors hydraulic model. The information gathered from this study would allow the ports to assess the potential impact of future dredging and landfill activities. The data will also help harbor personnel improve their understanding of the overall effects of tides, winds, and waves, enabling them to moore ships more safely throughout the harbor.

It is my understanding that the Corps is capable of continuing both of these studies if funded.

Also, Mr. Chairman, I would like to express my wholehearted support for the Corps' recommendation of $600,000 to dredge the mouth of the Los Angeles River. I would like to suggest, however, that this dredging be performed on an annual or, at least, biennial basis and that the dredged material be used for the replenishment of sand on the beaches down coast from the Los Angeles River.

On behalf of the ports of Los Angeles and Long Beach, I am seeking a total of $2,930,000—including the Corps' request—for projects in fiscal 1985. When you stop to realize that these two ports are expected to contribute $1.9 billion in customs receipts to the Treasury Department this year, I think it is easy to recognize that they are not a financial burden on us. Furthermore, with the data now available, we expect Los Angeles-Long Beach customs receipts to grow steadily in the years ahead.

Should we fail, however, to approve the ports' modest, yet badly needed, funding requests, we may feel the consequences of our inaction in two places: in and around the port area and at the U.S. Treasury Department.

VENTURA HARBOR, CALIF.

Along these same lines and in concluding I would like to add my complete support for the Ventura Harbor funding recommendations submitted by our friend and distinguished colleague from southern California, Bob Lagomarsino. This would include the expenditure of $2.5 million, as recommended by the Corps, in 1985 for maintenance dredging of the Ventura Harbor entrance channel, and $250,000 to begin a previously authorized review study of the navigational problems associated with the Ventura Harbor entrance.

In conclusion, Mr. Chairman, I would again like to thank you for this opportunity to be heard on these very important matters.

Senator WILSON. Thank you very much, Congressman. I must inform my colleagues that I have no questions for you. In fact, I am tempted, having conducted this hearing, to go ahead and mark up the bill right now. [Laughter.]

Thank you very much, unless you have further comments.

Mr. ANDERSON. I'll sneak out. I want to hear Bob, he always excites me.

Senator WILSON. We will move next to Congresswoman Bobbi Fiedler whose district I toured last year after the tremendous storm damage. I share her great interest in trying to achieve protection and prevention for the future so that the damage that has occurred in the past will not reoccur.

Congresswoman Fiedler.

STATEMENT OF HON. BOBBI FIEDLER, U.S. REPRESENTATIVE FROM CALIFORNIA

Ms. FIEDLER. Thank you very much, Mr. Chairman.

As you know, we have been successful through your joint efforts and mine in securing some funds for the Calleguas Creek for the study of that creek after the $37 million loss occurred last year in the 1983 storms and we are again asking that we receive $320,000 so that we can continue on with that study in order to find some final solution to the very serious problems in that area.

California Coastal Storm and Tidal Wave Study

Also, the California coastal storm and tidal wave study which is being done up and down the State of California, but has not yet been done in Los Angeles or Ventura County, is something that we would like to have extended to that area so we can have a better understanding of impact of tidal waves and storms along the coastline in order to prevent further problems from occurring in the future.

Channel Island Harbor, Calif.

The third item that I would like to mention to you, Mr. Chairman, is the Channel Island Harbor, and although I have submitted more indepth testimony on these issues, this is one I would like to highlight particularly. That harbor was built with Federal funds; it is ordinarily dredged every other year. Regrettably, the dredging that is taking place this year is not enough to complete, to resolve the problems that exist in that area. They are running short of the funds necessary to conclude the ordinary dredging process and the output of this is particularly troublesome for some of the beaches adjacent to the area.

Port Hueneme has had some very serious problems as a result of erosion and what they have been doing is taking the dredged sand and debris from that area and putting it up on the beach area at Port Hueneme in order to help resolve some of the problems that they have there. I would hope that the committee would seriously consider some additional funds for this project to make certain that neither the roads nor some of the other property or other problems that can occur in the event those roads collapse and sewers go out, that we need funds very badly for the conclusion of this project and I would hope not only to have your support of it, which I am sure that we do, but also the committee would consider giving us some funds for that special project.

I, too, have someone here today and I am not certain that I am aware of everyone from my area, but I would like to introduce Bob Jennings who is involved with the Port Hueneme Harbor District.

Thank you very much for the opportunity to testify.

[The statement follows:]

STATEMENT OF REPRESENTATIVE BOBBI FIEDLER

Mr. Chairman, I want to thank you for permitting me to appear before the subcommittee today to support several projects that are of vital importance to my congressional district.

As you may remember, I appeared before the subcommittee last year to request that funds be appropriated for a study to evaluate various flood control alternatives for the lower reach of Calleguas Creek, loated in Ventura County, Calif. The money to begin that study was appropriated in fiscal year 1984 and the Corps has completed approximately one-third of the necessary work. Today, I join the California Water Commission in requesting an appropriation of $320,000 for fiscal year 1985 to fund the second year of this critical study. Property damage totaling $37 million from a 1983 storm, and the continued threat to Pacific Missile Test Center at Point Mugu, make it necessary that this study be completed as soon as possible, so that a long-range solution to the problem can be found.

Additionally, I want to join many of California's elected officials in support of continuing the coast of California storm and tidal wave study being conducted by the Corps. The eventual goal of the study is to determine how California's coastline is affected by storms and normal wave activity. When the study is concluded, the results are expected to have significant impact in the areas of harbor planning, harbor dredging, and beach erosion control.

In particular, I urge the subcommittee to fund the study for fiscal year 1985 at a level of $1.5 million as requested in the proposal to be submitted to the subcommittee by the California Marine and Navigation Conference (CMANC). This level will permit the valuable work being done by the Corps to be expanded from the San Diego and Orange County areas north to the coast of Los Angeles, Ventura, and Santa Barbara Counties.

I've received several letters from local and State elected officials in support of the storm and tidal wave study. Their interest in the study demonstrates the concern that California officials at all levels have about the State's beach erosion and maintenance problems, and I urge the subcommittee to appropriate the full $1.5 million included in the CMANC request for this study.

Additionally, I want to let you know of my support for the Freeman diversion improvement project, a Federal loan under the Small Reclamation Projects Act. The United Water Conservation District of Ventura County has applied for the loan which would permit the district to increase diversions of the Santa Clara River waters to help control the advance of seawater into the underground aquifers of the Oxnard Plain.

The Oxnard Plain is the only agricultural area in the country that produces three crops per year, and a nationally significant amount of fruit and vegetables is produced in the area. If the intrusion of saltwater into the aquifer is not halted, the area will be lost for agriculture—a tragedy for the area's economy and for food prices nationally.

I join my colleague, the honorable Robert Lagomarsino, in supporting two projects involving the harbor of Ventura, Calif. CMANC has requested $2.9 million for operations and maintenance dredging of the harbor and an additional $250,000 is proposed for a Corps study of long-standing problems at the harbor. Although these two projects are located in Congressman Lagomarsino's district, I know that their successful completion will be beneficial to the county as a whole, and they have my support.

Finally, I want to bring to the attention of the subcommittee a critical situation that exists regarding dredging of the Channel Islands Harbor in Ventura County. The project, which was constructed with Federal funds, is dredged biennially by the Corps of Engineers. The Corps has just completed dredging operations at the harbor, using funds appropriated for fiscal year 1984. Unfortunately, the appropriation for the project was too small to permit completion of all necessary dredging and only the channel entrance was dredged. Lack of funds made it impossible for the Corps to dredge the sandtrap, located near the harbor.

Although the harbor is used primarily by small craft and as a harbor of refuge, the dredging is critically important because the spoils resulting from the maintenance work are pumped onto nearby downcoast beachs at Port Hueneme. As a result of severe 1983 storms, these beaches are seriously denuded. Because dredging at Channel Islands Harbor was only partially completed, the amount of spoils material available to build up the beaches and protect against further erosion has been greatly reduced. Although the Corps has not requested any funds for dredging at Channel Islands Harbor for fiscal year 1985, CMANC has included the project in its recommendations, requesting $2.3 million for dredging of the sandtrap.

It is crucial that this money be appropriated to allow dredging of the sandtrap at Channel Islands Harbor. Without the dredging and resulting spoils for protection of the beach at Port Hueneme, annual winter storms could well result in destruction of city streets, sewer lines, and even private homes. Federal costs for disaster assistance in that case could easily outstrip the cost of the proposed dredging.

I believe that it is imperative that $2.3 million be appropriated for the dredging at Channel Islands Harbor to avoid an emergency condition next winter, and I urge the subcommittee to act favorably on this request.

Senator WILSON. Thank you, Congresswoman. I will give you assurance that the committee as presently constituted supports your request in full. [Laughter.]

Congressman Norman Shumway, with whom I share a number of concerns, perhaps none is more keenly shared than our desire to see the dream of Northern Dam become a reality as quickly as possible to provide the benefits in terms of power and water and recreation and flood control that it offers.

Congressman Shumway.

STATEMENT OF HON. NORMAN D. SHUMWAY, U.S. REPRESENTATIVE FROM CALIFORNIA

Mr. SHUMWAY. I appreciate this opportunity to appear before the subcommittee. I appreciate your filling in and I promise that I will keep my remarks very brief.

I do represent a unique area of California in that it is an area that has some of the beautiful mountains that provide the source of much of the water that we talk about in these hearings and an area also that embraces much of the beautiful San Joaquin Valley and, therefore, is important to agriculture which is vital to all of us in California.

There are a couple of projects that I would just like to call to your attention. I am submitting a prepared testimony which addresses many projects in detail. Let me just highlight a couple of those.

SAN FRANCISCO BAY TO STOCKTON, CALIF.

One of them is an ongoing project, the deepening of the channel from San Francisco Bay to the port in Stockton. The project has been underway for a couple of years now and is a project that, hopefully, will be finished during the coming year. For that effort, $3 million will be necessary and I, therefore, strongly support the President's request, the California Water Commission's position, the city of Stockton, the county of San Joaquin, and the port of Stockton in asking that that appropriation be made for fiscal year 1985. It is vital to finish that project for the well being of that port.

LOWER SAN JOAQUIN RIVER, CALIF.

While I am here before the subcommittee, I would like to talk about a couple of other projects that fall outside of the subject of ports, but nevertheless will be addressed this afternoon. One is the matter of snagging and clearing the lower San Joaquin River. Some years ago we had studies made that revealed the need for some clearing of the lower San Joaquin channel. That type of work had been done on the Sacramento River in years previous and many of those along the San Joaquin now feel it needs to be done in their area. So, the California Water Commission has recommended an appropriation of $2 million to move ahead with that project and I heartily endorse that and hope that it will be the decision of the subcommittee.

AUBURN-FOLSOM SOUTH UNIT

Finally, although not least among those that I am mentioning, is the Auburn-Folsom South Dam of which the chairman is very well aware. This is part of the Central Valley Project, a very useful, needful project in California. We have bills pending in both the House and the Senate which would provide for discussions toward the reauthorization of that project. There is a great deal of interest, both here in the Federal level as well as the State level, for its getting back on track and becoming a reality.

AUBURN DAM, CALIF.

In my testimony, Mr. Chairman, I have described two figures that are being discussed for Auburn Dam. One is the figure of $3.5 million which is the recommendation of the Bureau of Reclamation that will allow them to continue to keep in place those aspects of the project which are now there. The other is $5.25 million which would allow that work plus proceeding with final design. The Bureau believes that final design may not be necessary at that time and I am not sure what the outcome of that position may be. I would simply submit to the committee that both figures will be suggested and I am sure the committee will be hearing further testimony from California people as well as Bureau people and will make a wise decision. All of this, whether we want one figure or the other, we want to see the project move ahead. We would like to see the dam built and whatever the committee decides to do in that regard we will accept very gladly.

Mr. Chairman, there are many other projects and I address them in my prepared testimony and I hope that the subcommittee gives its attention to them all.

I would like to introduce the gentleman sitting at my left who serves as the director of the Port of Stockton, Mr. Alex Krygsman, who will describe further some of the needs and situations regarding the port.

Thank you, Mr. Chairman.

Senator WILSON. I commend you, Congressman Shumway, for your leadership in this area. I supported you on the Auburn Dam, in fact we recently visited it together with several others on a day when there was enough water falling from the sky to have filled the dam had it been built.

In a somewhat drier part of the world where water is perhaps more, or at least equal in importance, the lower Central Valley, we are pleased to have with us representing that area today Congressman Bill Thomas.

[The statement follows:]

STATEMENT OF REPRESENTATIVE NORMAN D. SHUMWAY OF CALIFORNIA

Mr. Chairman and Members of the Subcommittee, I am pleased to have the opportunity to testify today in support of a number of water-related projects which are vital to the well-being of my Congressional District and to the State of California in general. I would also like to commend the Subcommittee for taking the time to hear the myriad water needs of our entire State.

I would like to emphasize, Mr. Chairman, the importance of water and water-related projects to my District. Within the 14th Congressional District, a district which includes twelve counties, is a large portion of the Central Valley, the Mother Lode country, and the Sierra Nevada mountains. A substantial portion of California's critical Central Valley Project water yield stems from this diverse region. At the same time, also included in the 14th District is a world-renowned agricultural industry which is essential to the local economy and consumers nationwide. This agricultural industry depends on an adequate supply of water for its livelihood.

Clearly in a region such as this, the need for progressive, yet responsible water policy and development is unquestionable; accordingly it is incumbent upon all interests and levels of government - local, state, and federal - to assure the construction and maintenance of requisite water storage, conveyance, and flood control systems. Again I commend you, Mr. Chairman and members of the Subcommittee, for the role you play in this process.

In this regard I also commend the President because I believe it was in the same spirit of resource cooperation that he developed his Administration's water policy which was outlined not too long ago. I am particularly pleased to support this policy because it includes, as its linchpin, the worthwhile, yet realistic, concepts of cost sharing and a strong "Federal-State" partnership for water development.

I am also pleased to support, in large part, the President's FY '85 budget requests for the Army Corps of Engineers and the Bureau of Reclamation. The proposals which I am advocating today are both responsible and essential for the water devlopment of my Congressional District. They are:

ARMY CORPS OF ENGINEERS

1) New Melones Lake -- $ 4,500,000

With this appropriation, the Corps will be able to continue with the construction of recreational and wildlife facilities needed to maximize this project's benefits. I therefore support the President's FY '85 request for this program.

2) San Francisco Bay to Stockton Ship Channel Project -- $ 18,400,000

It is my understanding that $3.4 million of this project will be applied to deepening the Stockton channel to 35 feet. In doing so, the Port of Stockton will be able to handle much longer ships with over twice the carrying capacity that they are now able to handle. This will, in turn, eliminate the necessity for "topping off" facilities at San Francisco and other ports. Since $3.4 million is the amount needed to complete this worthwhile project which began several years ago, I strongly urge the Subcommittee to approve this portion of the appropriation in full. I therefore join the President, the California Water Commission, and the City of Stockton in requesting a total project appropriation of $18.4 million for FY '85 for expedient completion of the channel deepening.

3) Aquatic Plant Control -- $ 5,000,000

This program researches and helps control the growth and spread of the water hyacinth - a plant which has, in the past, literally immobilized vast reaches of the San Joaquin/Sacramento Delta. Substantial success in controlling this waterway blockage has been realized through this program. I therefore support the President's FY '85 request for a $5 million appropriation to continue these efforts.

4) San Joaquin River Basin Survey -- $ 445,000

This survey, although being conducted under the title of "Flood Damage Prevention," will help identify and implement ways to improve all benefits to be realized from this river including agricultural, municipal and industrial water supply; possible hydro development; water qulaity enhancement; and fish and wildlife improvements. I very much support the President's FY '85 request of $445,000.

5) Lower San Joaquin River and Snagging -- $ 2,000,000

Last year's expenditures of $750,000 uncovered the need for clearing and snagging, or at least further analysis, on at least five sites along the river. I am joining the California water Commission in support of an appropriation of $2,000,000 to move ahead with this project.

6) Operation and Maintenance

I support the FY '85 Army Corps of Engineers budget request by the President for operation and maintenance for the following projects:

a)	Farmington Dam	$ 128,000
b)	New Hogan Lake	1,310,000
c)	New Melones Lake	567,000
d)	S.F. Bay - Delta Model Structure	940,000
e)	San Joaquin River	2,260,000

BUREAU OF RECLAMATION

1) Auburn-Folsom South Unit -- $ 3,500,000 - $ 5,250,000

The Auburn Dam request made by the President for this year is that amount required to maintain current Bureau operations in the Auburn area.

As you know, the construction of this project has been delayed over the years for various reasons. As a consequence of these delays, the estimated cost of construction costs for the project have exceeded the limitation set in the original 1965 authorization. To remedy this situation I have introduced legislation which would authorize the Secretary of the Interior to enter into cost sharing agreements with non-federal entities to make up for this funding shortfall and subsequently reauthorize the project at current cost estimates.

Until this legislation is enacted, the President has requested monies to keep the Auburn Dam facilities open and various studies on schedule. However, many of the potential non-federal funding entities in California believe additional money (a total of $5.25 million) should be appropriated to accelerate the studies on final design. Their reasoning is simply that meaningful negotiations cannot take place if potential investors do not know the final design of what it is they are investing in.

Although the Bureau of Reclamation does not believe extra funds are needed at this time for cost sharing negotiations to take place, the argument in favor of additional final design funds makes certain sense. I believe the federal government, if it asks for cost sharing assistance from non-federal entities, must send a strong signal to those entities demonstrating that it is seriously committed to good faith bargaining. This additional funding level would be one such signal.

It is my belief that this subcommittee will be hearing enough valuable testimony from a wide enough range of witnesses to determine whether the President's $3.5 million funding level is adequate in light of ongoing negotiations or the $5.25 million level is needed.

2) Delta Support Studies -- $ 789,000

I am pleased to be able to support the President's request of $789,000 for this project. This funding will permit needed studies to examine the Sacramento/San Joaquin Delta, the key to California's water systems. It is my understanding that $408,000 will be operation and maintenance funds and $381,000 will be for contstruction funds.

3) New Melones Studies -- $150,000

This money will be used for water system and conveyance studies that are needed in the negotiation of interim and long-term water supply contracts. There is a real need for this project; I therefore support the President's FY '85 $150,000 funding level.

4) Grass Valley Debris Dam -- $ 500,000

This dam will trap about two-thirds of the Grass Valley Creek's sediment load without significantly altering the creek's environment below the dam. I therefore support the President's FY '85 request for $500,000.

5) Trinity River Sand Dredging -- $ 200,000

I am also pleased to support the President's FY '85 budget along with the California Water Commission in their request for $200,000 to be used for the much-needed sand dredging of the Trinity River.

I would like to thank the subcommittee for this opportunity to testify in support of these vital projects.

STATEMENT OF HON. WILLIAM M. THOMAS, U.S. REPRESENTATIVE FROM CALIFORNIA

Mr. THOMAS. Thank you very much, Mr. Chairman.

I have a written statement I would like to submit for the record and then just briefly highlight some of the particular concerns of what I believe is also a unique district in that it is the only one that extends from the Sierra Nevada in California to the Pacific Ocean. So our requests cover plains, mountain areas, as well as damage along the sea coast in the 1982-83 storm.

Senator WILSON. You are indeed fortunate.

Mr. THOMAS. Yes.

A little later the supervisor, who is directly concerned with the area called Caliente Creek, Ben Austin, will address you, as well as the county water agency manager, Stewart Pyle.

CALIENTE CREEK, CALIF.

The Caliente Creek project is one of which has been funded for some time and Congress restored, I think, $500,000 for the study budget in 1984. We have had some difficulty in determining the exact benefit-cost ratio appropriate for a project in the area. The Corps is currently reevaluating its crop damage figures. One of the concerns that I have is that there has been real human damage in terms of the Caliente Creek problem. It is just that the type of folks who are in the direct flood path of Caliente Creek are not those who are in the higher socioeconomic levels. I hate to think that that would be a determiner in the cost-benefit ratio, because the human suffering was indeed significant.

PORT SAN LUIS HARBOR, CALIF.

Along the coast, Port San Luis, which is the only really viable commercial port for a 250-mile stretch of California coastline from Santa Barbara to Monterey, is a request for $700,000 for a continuation of the breakwater extension along the southern portion of the bay. This was the direction of the devastating storm of 1982 and 1983 came and which produced the destruction of the Union Oil pier at a $30 million cost. It is becoming more and more an important commercial fishing port as well as a recreational vessel mooring.

In addition to that, the Antelope Valley, which I know the chairman realizes is an important national asset containing Edwards Air Force Base, the emergency landing site for the Space Shuttle, the assembly site for the Space Shuttle, and the assembly site for the B-1 bomber, is requesting $140,000 to continue studies for flooding in that area.

The city of San Francisco is requesting an additional $150,000 to continue studies in the San Luis Obispo city area.

SAN JOAQUIN VALLEY CONVEYANCE STUDY

Finally, I just would like to indicate my strong support for the continuation of the San Joaquin Valley conveyance study because, as the chairman knows already, when water comes to our area it normally comes in a devastating way. This would bring water the appropriate way in terms of a continuation of the valley water projects to bring water in the appropriate fashion for the needed agriculture in the valley.

Thank you, Mr. Chairman, very much.

Senator WILSON. Thank you, Congressman Thomas.

[The statement follows:]

STATEMENT OF REPRESENTATIVE WILLIAM M. THOMAS

Mr. Chairman, I appreciate the opportunity to appear before the subcommittee today to explain the urgent need for funding to continue flood control and breakwater studies in the 20th Congressional District.

I wish to thank the subcommittee for including funds in the fiscal 1984 budget for these studies, and I would like to direct your attention to four specific studies which need to be advanced during fiscal 1985: The Caliente Creek stream group investigation, Antelope Valley flood control study, San Luis Obispo County flood control study, and Port San Luis breakwater study. Also, I urge approval of funds for the San Joaquin Valley conveyance study.

First, I request that $250,000 be restored to the fiscal 1985 budget for Caliente Creek studies. Congress restored $500,000 to the fiscal 1984 budget for the Army Corps of Engineers to continue with the third and final stage of flood control study on Caliente Creek, but the Corps has spent only $300,000 of this appropriation and has not requested further funding to complete its investigation in 1985, stating that it has not identified a feasible, cost-effective project and that there is no local consensus for a particular project. However, local support for a flood control project remains strong. A task force of local citizens and water officials was formed last year to work with the Corps on developing a cost-effective flood control project.

The task force has challenged the Corps' initial damage estimates for last year's floods and has presented considerable evidence that agricultural damage was actually twice the Corps' original estimate, and urban damage was also higher than estimated. In addition, flood frequencies on Caliente Creek may be much higher than indicated in the Corps' initial study. Higher damage estimates necessarily change the benefit-cost ratio, which could place a small storage reservoir and flood channel within the range of feasibility. Therefore, studies based on the new damage information should be made in fiscal 1985. This funding request is supported by the California Water Commission, the Kern County Water Agency, and the Kern County Board of Supervisors. Local officials are firmly committed to sharing project costs with the Federal Government, and the California Water Commission has made Caliente Creek flood control a priority item. It is vitally important that studies be completed so that work can go forward on an appropriate project.

I would also appreciate the subcommittee's help in restoring $700,000 to the fiscal 1985 budget to allow the Corps of Engineers to complete a general evaluation report on a previously authorized breakwater and port expansion project for Port San Luis, Calif. Construction funds were authorized for the project in 1976, but the California Coastal Commission objected to the original plans, and severe winter storms pounded Port San Luis in 1982 and 1983. Both events have prompted local officials to ask that the port plan be reevaluated to see if it can be changed under its current authorization to protect more coastal facilities and satisfy the coastal commission's requirements.

Port San Luis contains a growing commercial and sport fishing industry as well as a crude oil terminal pier which was completely destroyed in last year's storms. Expansion of the breakwater to protect against the type of severe southern storms which damaged Port San Luis last year would greatly augment current facilities and enable greater use of Port San Luis in the future. This funding request is supported by the California Marine Affairs and Navigation Conference, and I ask the subcommittee to include funding for the evaluation in the fiscal 1985 budget.

The Corps of Engineers is requesting $140,000 to continue flood control studies in the Antelope Valley, a rapidly growing area which includes Edwards Air Force Base, the B-1 bomber assembly site, and the Space Shuttle assembly site, each of vital importance to national security. The Corps is also requesting $150,000 to continue flood control studies in San Luis Obispo County. I urge the subcommittee to approve funding for both of these projects which have the support of the California Water Commission and the respective county boards of supervisors.

The projects I have listed are critically important to the people of the 20th Congressional District. Storm and flood damage has increased dramatically in recent years in my district and I cannot emphasize strongly enough the importance of keeping these investigations on schedule.

In addition, I would like to express my support for a Bureau of Reclamation study which will benefit the San Joaquin Valley's water supply. The Bureau is requesting $357,000 to continue the San Joaquin Valley conveyance study. If approved, this project would greatly alleviate a chronic overdraft of Central Valley ground water while providing wildlife conservation benefits as well, and preliminary studies indicate it would not damage water quality in the delta region. I strongly urge approval of the study.

PREPARED STATEMENT

Senator WILSON. Before recognizing Mr. Krygsman, we will insert a statement which Congressman Jerry Lewis has submitted.

[The statement follows:]

STATEMENT OF REPRESENTATIVE JERRY LEWIS OF CALIFORNIA

Mr. Chairman, I appreciate very much having the opportunity to submit testimony before your committee today regarding the Santa Ana flood control project. When complete, the flood control project on the Santa Ana River will protect the lives of 1.8 million people and will protect against potential flood damage amounting to over $9 billion in the three California counties of San Bernardino, Riverside, and Orange.

We feel it is absolutely necessary to appropriate $3.5 million next year to complete upstream studies and continue design on the lower portion of the main stem of the Santa Ana project. Any substantial reduction will delay the project a year or more.

Immediate studies are also needed on major tributaries. Because of the magnitude of this project, major tributaries are addressed in separate interim reports. Interim report 2 addresses upstream tributaries in my district and that of my good friend and colleague George Brown. We believe it is critical for studies to begin on these key streams at the earliest possible time. This request is strongly supported by all of the cities in my area because of the disastrous flooding in 1969, 1976, 1980, and historically as far back as 1891. I am sure many of my cities contacted this committee directly. We need $400,000 for interim report 2 and I hope you will give my request favorable consideration.

Similar conditions exist in Orange County and these downstream tributaries are addressed in the interim 3 report. That additional funding will fall under the budget line item referred to as "Santa Ana and Orange County."

In summary, the Santa Ana River is the most important flood control project in the West. It is essential for sufficient funds to be appropriated to keep the project on schedule. There is a very cooperative and supportive attitude among the three counties involved and they have been working diligently together to reach compromises and ensure the safety and flood protection our constituents need.

In closing, I would like to take this opportunity to thank this committee for its assistance in the past for its support for the funding levels in the President's budget regarding the Majove River Dam, Lytle and Warm Creek, and Cucamonga Creek projects. I feel $3.5 million should be appropriated for the Santa Ana River main stem and $400,000 should be appropriated for the main tributaries studies in interim report 2.

Senator WILSON. With that, let me now return to Mr. Krygsman who is here representing the Port of Stockton.

CALIFORNIA NAVIGATION PROJECTS

STATEMENT OF ALEXANDER KRYGSMAN, PRESIDENT, CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE, AND PORT DIRECTOR, PORT OF STOCKTON, CALIF.

Mr. KRYGSMAN. Mr. Chairman, I come to you today not only as director of the Port of Stockton, but also as the president of CMANC. In the interest of time and to take advantage of the fact that we have a California Senator as chairman of this committee and hopefully before a regular member of the committee shows up, we would like to get our testimony in.

I will introduce our statement just for the record and I will not read it.

[The statements follow:]

STATEMENT OF ALEXANDER KRYGSMAN, PORT DIRECTOR, PORT OF STOCKTON, CALIF.

Mr. Chairman, I am Alexander Krygsman, port director of the Port of Stockton, Stockton, Calif.

The Port of Stockton deepwater channel deepening project is an authorized project, presently under construction.

The Port of Stockton is primarily a bulk port that serves industry and agriculture in the San Joaquin Valley in California and the bulk imports and exports of the Western States, including the coal areas of these States.

The Port of Stockton recognized as far back as 1952 that deeper channels would be needed for the movement of bulk cargos and requested the Corps of Engineers to deepen the channel in 1952. Coal, grain, fertilizers, and many other bulk materials require deeper channels to serve the larger bulk carriers.

The Nation needs ports that can handle larger, more economical and more fuel-efficient vessels close to the production areas, both agricultural and industrial, to conserve energy.

The Port of Stockton is such a port. Its channel is presently being deepened to keep it a viable port that can adequately serve our Nation and California's needs.

The Stockton channel deepening project has overwhelming public support. The city of Stockton, San Joaquin County, neighboring cities and counties, and the State of California support it.

This urgent project is now more than half done and it deserves continued funding to completion. We urge you to appropriate $18.4 million to fund continued construction for the fiscal year 1985. This same amount is in the proposed President's budget.

I wish to also state for the record that the Port of Stockton is in support of deepening the Sacramento Channel.

The Port of Stockton also supports continued funding of programs to control the growth of water hyacinths in the San Joaquin/Sacramento Delta.

The attached material describes some of the work being done in connection with the Stockton Channel deepening project.

SAN FRANCISCO BAY TO STOCKTON, CALIF.

Mr. KRYGSMAN. I do wish to make one clarifying point. Congressman Shumway testified that we need $3 million to conclude the Stockton portion of that project. I do wish to point out that the total project is from Sacramento—I will get to Sacramento in a minute—San Francisco Bay to Stockton and that the Stockton portion requires $3 million. The other part of that authorization requires another $15.4 million. The total number in the proposed Presidential budget is the $18.4 million total. So, next year when the Port of Richmond comes back and asks for the additional funds, do not be misled to believe the project is finished. Our portion of the project will not be finished.

I also wish to point out we have a copy of our magazine with our testimony and I had also given to you, which is not part of our presentation, the 1981 copy that shows the delta and then our newest copy that also shows the delta, and they are greatly improved because of the projects and the funding and I would like to support the funding—that is a very worthwhile project—so that it does not appear like it is here smarting the delta.

I am also talking about—and I made a slip of the tongue there about Sacramento and I do wish to state, and it is also in my written statement that we do support the deepening of the Sacramento Channel.

In the overall in my capacity as president of CMANC, I wish to point out that there are only three construction projects in the State of California in navigation that are authorized that are funded in the proposed 1985 budget that I know the advance engineering project proposed in that budget and there is no funding for engineering studies. In the next several years, two or three of the projects under construction will be completed and if the studies and engineering is not done between now and then, the additional navigation improvements important to our region and the Nation cannot go forward. We cannot afford to let navigation become stagnant in the State, so I would like to point that out and support fully some of these increases over and above the proposed budget as very necessary to keep navigation in the future in California involved.

Mr. Chairman, thank you very much for your time.

Senator WILSON. Thank you very much, Mr. Krygsman.

Now, I will call upon Mr. Robert Langner, who is the executive director of the California Marine Affairs and Navigation Conference.

Mr. LANGNER. Thank you, Mr. Chairman. Our first witness is Sheila Lodge, mayor, city of Santa Barbara.

SANTA BARBARA HARBOR, CALIF.

STATEMENT OF SHEILA LODGE, MAYOR, SANTA BARBARA, CALIF.

Mayor LODGE. Thank you.

Senator Wilson, the photograph I am showing you was taken in March 1983. That is our harbor entrance. The harbor was closed completely for 2 months at great economic loss. Our harbor is home to some thousand vessels and a Coast Guard cutter. Fifteen percent of our vessels are commercial fishing vessels. Santa Barbara is, curiously enough, the largest seaport in the whole world.

This picture is of a proposed plan which would solve the problems caused by conditions which need annual dredging. So we are urging that you support funding for the harbor and we are strongly urging support for putting into the budget which is not the President's budget for $1.1 million in 1984 for dredging to keep our harbor open. As indicated, there is a $1 million capability there and we must have funding available to do the dredging, otherwise we face the loss of 1,300 jobs and the ability to service the port.

Thank you very much.

Senator WILSON. Thank you, Mayor Lodge.

[The statement follows:]

STATEMENT OF SHEILA LODGE, MAYOR, SANTA BARBARA, CALIF.

Nearly sixty years of problems have plagued Santa Barbara's harbor. History has demonstrated that the harbor was a prime example of what should be avoided when one builds a harbor. For example, Santa Barbara's worst storms enter from the southeast, a direction from which the harbor has never been adequately protected. The harbor's inadequate breakwater, as it is in place today, impedes the littoral flow of sand, causing siltation at the harbor's entrance, and errosion of the beaches down the coast--within Santa Barbara County this is most noticeable in the communities of Montecito, Summerland, the Rincon area and south, and the City of Carpinteria. The Army Corps of Engineers' plan of the 1960s would have completely sheltered the harbor, minimized the sand problems, and provided additional slips. However, due to several environmental oversights on the part of the Corps, the plan was defeated in a 1967 election.

Sixteen years have passed since that election. Conditions have worsened. The Harbor was closed in 1983 for six weeks--a condition which received national publicity because the Queen of England could not arrive in Santa Barbara's harbor as planned. Of greater importance, though not receiving the same amount of publicity, was the devasting lost of income incurred by local fishermen who could not get in or out of the harbor.

For the past several year a Task Force, appointed by the Mayor, has reviewed the harbor and recommended a plan for harbor improvement and protection. To arrive at the conceptual drawings before you today, the Task Force, aided by City staff and working with the cooperation of the Army Corps of Engineers, did the following:

- Reviewed past studies (there have been 19).
- Reviewed current conditions and uses.
- Developed the concept plans for a breakwater protection system to aid in developing community interest and upon with the Army Corps of Engineers could begin their necessary studies, including wave tank testing of a model of the proposed solution.

Sand intrusion into the harbor cannot be stopped with the present configueration. With this as a fact, waterfront businesses, such as the Santa Barbara-based commercial fishing fleet, suffer huge economic losses when the harbor is closed.

The Task Force, through Mayor Lodge's appearance before you today, requests funding which will allow the Army Corps of Engineers to study and evalute this plan, as well as any other plan they deem as worthy of consideration, as a viable solution to the problem of the Santa Barbara harbor--a solution which will protect the marinas, the City-owned wharf, and preserve the local beaches. Such a solution will limit the scope of annual dredging programs.

Since the Santa Barbara harbor was first constructed there have been many improvements made to the area but none of them have resolved the problems of reduced capacity and safety caused by sand siltation.

Siltation was acknowledged prior to building the groin in 1931-32 and dredging operations were started as early as 1938. However, the force of nature knows no bounds and through the years sand has encroached into the harbor area to the point that much of it has been rendered useless--not to mention unsafe. The Mayor's Task Force believes that the most plausable solution to this problem is a breakwater system approximating the design submitted in this packet. It is believed that such a design will form the most effective physical boundry against the intrusion of sand into the harbor area.

Since the harbor is a harbor of refuge and since it is the only facility between Ventura and Morro Bay, the harbor needs to be kept open and useable to as many members of the boating public at large as possible. For this reason the concept of an improved harbor facility incorporating a new protective breakwater system needs to be studied and tested by the Army Corps of Engineers.

The establishment of need for an improved harbor can be broken down into three areas: safety, physical deterioration, and recreational and public demand.

Safety: The Rivers and Harbors act of 1947 declared that Santa Barbara harbor is a harbor of refuge. As an outgrowth of this act the Federal Government is required to keep the channel open to "light draft" vessels for safe passage. As a practical matter, this is becoming more and more difficult with the siltation that has occurred. The photographs of the harbor which accompany this material show the narrow and winding entrace to the harbor. It is also important to note, and the attached photographs help demonstrate, that wave action during the winter months pushes sand from the sandspit into the channel entrance and actually closes the harbor to passage. In 1983, as mentioned earlier, the harbor was physically closed for six weeks because the heavy storms excellerated this condition beyond what normal dredging operations could stabalize or control.

Physical deterioration: The enclosed photographs also show how siltation has reduced the area available for berthing and mooring boats. Commensurate with this, however, is the subsurface build-up throughout the channel and harbor areas. Dredging has taken place since 1938 in an effort to manage the sand, however, it has fallen behind the natural forces. This long term experience indicates the need for a permanent (extended) breakwater solution to the problem, not a limited and costly sand management solution by dredging.

Demand: There is a strong demand for the Santa Barbara harbor--even for expanding the facilities. At the present time there are more than 600 people on the waiting list for a slip. Federal studies (National Marine Fisheries Service, 1980) indicates: "Santa Barbara would probably attract a considerable number of (additional) fishing vessels if landing facilities were available.

The focus of attention of the plan which is being submitted herewith is not aimed at expansion--though it is undeniably larger than the present harbor--but at preservation and safety. If we can prove this proposed plan sound and viable though study and analysis by the Army Corps of Engineers, then we believe with a new breakwater in place the Santa Barbara harbor will be storm safe. This in turn will protect the City's recently restored Stearn's Wharf facility, and prevent damage to the boats using the marinas. With the new breakwater in place, its design should (and Corps testing will prove) assist the sand to follow its natural littorial flow allowing sand to appear on the beaches south of Santa Barbara.

The plan, as submitted, protects, maintains, and indeed enhances the entire waterfront area.

RESOLUTION NO._________

A RESOLUTION OF THE COUNCIL OF THE CITY
OF SANTA BARBARA REQUESTING THE FUNDING
OF UNITED STATES ARMY CORPS OF ENGINEERS
PLANNING EFFORTS FOR SANTA BARBARA HARBOR

WHEREAS, Santa Barbara Harbor has been subject to sand shoaling since inception in the 1920's and must be dredged annually to remove up to 350,000 cubic yards of sand build-up in order to maintain a navigable harbor entrance; and

WHEREAS, the harbor provides permanent berthing for over 1,000 boats of which 15 percent are commercial, a Coast Guard cutter and a defense research ship; and

WHEREAS, the harbor provides refuge to over 1,100 visiting boats in a six month period; and

WHEREAS, the harbor is a vital part of the local economy supporting the employment of 900 persons; and

WHEREAS, the Santa Barbara harbor is a regional harbor serving a far larger public than the City or County of Santa Barbara; and

WHEREAS, The United States Army Corps of Engineers has historically exercised the responsibility for harbor dredging at a significant annual cost; and

WHEREAS, without dredging, the harbor would close to navigation as experienced in 1983 causing economic hardship and threatening the safety of mariners; and

WHEREAS, the City created the Harbor Preservation Task Force to study existing conditions and to make recommendations for the resolution of any problems that might be identified; and

WHEREAS, the City of Santa Barbara Harbor Preservation Task Force has reported its preliminary findings to the Santa Barbara City Council; and

WHEREAS, the Santa Barbara City Council has requested the United States Army Corps of Engineers to reactivate the Santa Barbara Harbor Project for study to provide long term solutions for harbor protection and safety;

NOW, THEREFORE BE IT RESOLVED, that the Council of the City of Santa Barbara urges the President and the Congress to appropriate the necessary funds to provide planning funds for the Corps of Engineers to study long term harbor protection.

OCEANSIDE HARBOR AND SAND BYPASS SYSTEM

STATEMENT OF JOHN MACDONALD, DIRECTOR, OCEANSIDE SMALL CRAFT HARBOR DISTRICT

Mr. LANGNER. Dr. John MacDonald, director of the Oceanside Small Craft Harbor District.

Mr. MACDONALD. Senator Wilson, members of the committee, it is a pleasure to be able to come to Washington and meet with you. We have prepared a written testimony which we have submitted for the committee's consideration so I will just take a few moments to highlight the one project that I am here to ask support for.

The city of Oceanside requests the support of the committee for continuing funding to complete the Oceanside bypass system. The Congress has already invested $4.7 million in this project and in order to complete it we are asking for the necessary funds to do that, because it will not only be a budget that will be of value to the city of Oceanside, but also of interest to all of the harbors in the United States. This project, when completed, will substantially reduce the maintenance of dredging costs to the Federal Government. It will provide continuous service to our badly eroded beaches and it has the support of local, State, and Federal representatives, as well as the support of the beach communities down coast from Oceanside in San Diego County and I urge your continuing support for this project.

Thank you very much for the opportunity to testify.

[The statements follow:]

STATEMENT OF JOHN MACDONALD, CITY COUNCIL MEMBER, OCEANSIDE, CALIF.

The city of Oceanside requests your support for $2.8 million in continuing funding for the Oceanside sand bypass system. The Corps of Engineers has stated that these funds are needed to complete construction of the development phase of the project and operate and monitor the system for the fiscal year.

There is unanimous local support for the sand bypass system. The bypass has been designed by top experts in the Corps of Engineers and the scientific community. The recommended bypass design represents a state of the art alternative to the traditional maintenance dredging of the combined entrance to the Camp Pendleton/Oceanside Harbor complex, which is performed at full Federal expense. The Oceanside sand bypass has the potential for significantly reducing Federal maintenance dredging costs over the long term, and as a prototypical system could lead to substantial reductions in Federal maintenance dredging costs nationwide.

Your committee previously noted that Oceanside has suffered severe economic losses due to the serious beach erosion problem.

Completion and operation of the sand bypass is urgently needed to: Provide 400,000 cubic yards of sand annually to help stabilize and protect the beach which has recently been artificially nourished at local, State, and Federal expense; forestall the spread of beach erosion to downcoast communities; provide continuous maintenance for a vital military installation—Camp Pendleton Harbor; spur the economic recovery of Oceanside's floundering tourist industry and deteriorated shorefront and downtown; and prevent further property losses.

I urge your continued support for this important project.

STATEMENT OF LARRY M. BAGLEY, PRESIDENT, BOARD OF DIRECTORS, OCEANSIDE HARBOR DISTRICT

The Oceanside Small Craft Harbor District urges your support for the continuation of funding for completion of the Oceanside Harbor expansion navigation study in fiscal year 1985. This project is desperately needed to provide protection from surge within the harbor and to make the harbor a more financially viable operation.

Surge-generated waves in the harbor frequently exceed the 1.5 foot standard (surge has reached heights of 6 to 8 feet) suggested by the Waterways Experiment Station. Since 1963, there have been 73 boating accidents, with 30 major injuries and 5 deaths in the harbor entrance. The benefits gained from preventing damages ($400,000 in 1982 alone) and loss of lives caused by wave action in the harbor far exceed the cost of this project.

Harbor expansion would help to alleviate some of the demand for additional harbor facilities in southern California. The harbor expansion design plan has a benefit-to-cost ratio of 2.6 to 1, and its national economic development benefits could be expected to be even greater, as it would prevent inner harbor surge damages.

We respectfully request your approval of the recommendation of $350,000 for the completion of the navigation study.

PORT OF OAKLAND, CALIF.

STATEMENT OF JAMES J. O'BRIEN, DEPUTY EXECUTIVE DIRECTOR, PORT OF OAKLAND

Mr. LANGNER. James O'Brien, deputy port director, Port of Oakland.

Mr. O'BRIEN. Thank you, Mr. Chairman.

We have filed our written testimony with the committee. That testimony contains four exhibits which I would just like to comment on very briefly, because they have some interesting facts concerning the evolution of container ships over the past 20 years. Today's vessels are almost twice the length of those of 20 years ago; they contain a carrying capacity that has tripled. The vessel drafts have gone from less than 30 feet to almost 40 feet and, most importantly in our opinion, due to increasing vessel size and more fuel-efficient engines the new vessels, some of which are already in service, can transport a cargo container across the ocean for one-third the amount of fuel previously required.

In 1972, a House of Representatives resolution directed the Corps of Engineers to make a study of navigation improvements for the Port of Oakland. By 1979 the Chief of Engineers Office had approved and transmitted a navigation improvement project to the Congress. Due to the lack of appropriations, of funding, the project has not gone forward 12 years after the study resolution. Although the channel work has not been accomplished, the larger vessels are here with us now. Inadequate channel depth and width is causing vessel delays and increasing risk of collisions. I am here today to urge the appropriation of $2.7 million for the start of construction for these much needed navigation projects.

Thank you.

Senator WILSON. Thank you, Mr. O'Brien.

[The statement follows:]

STATEMENT OF JAMES J. O'BRIEN, DEPUTY EXECUTIVE DIRECTOR, PORT OF OAKLAND

My name is James J. O'Brien and I am Deputy Executive Director of the Port of Oakland. I am directly responsible for all the Port's maritime activities. I appreciate the opportunity of appearing before you on behalf of the Port.

The Port of Oakland is an independent department of the city government and is entirely financially self supporting. The Port's development of marine terminals and the private sector activities that take place because of those developments account for over 12,000 direct jobs.

The Port of Oakland, located on the mainland side of San Francisco Bay, has made optimum use of its location and natural setting to interface its extensive and modern marine terminal facilities with the facilities of other modes of transportation. Close to the Port are interstate highways, freeways, railroad and trucking terminals. The Port is served by 3 major railroads, a network of 6 main highways, 600 trucking companies and some 47 ocean shipping lines.

With the advent of containerized shipping in international trade in the late 1960's, the importance of convenient transfer between transport modes became critically important. Because of its geographical location, progressive management and inland transportation network, Oakland has developed into a major world containerport.

Oakland marine terminals consist of 18 container berths, 2 roll-on roll-off berths and 8 general cargo berths, representing a local investment of over $165 million in public funds. All of the terminals are presently accessed by a federal ship channel system consisting of the Bar Channel, the Outer Harbor Channel, and the Inner Harbor Channel. The channel system is currently maintained at a depth of -35' MLLW. Such a depth was adequate before containerization. Today, however, modern vessels require a minimum of 42 feet of water depth to navigate safely into and out of port. Over the last two decades four generations of containerships have evolved (see Exhibit 1 through 3). Today's ships, the fourth generation, have deeper drafts, carry more containers and are more fuel efficient (see Exhibit 4). A fourth generation containership can deliver a container across the Pacific using only one-third of the amount of fuel consumed by earlier vessels.

In the early 1970's the Port of Oakland foresaw this trend in vessel design and recognized that the federal channels serving Oakland would become inadequate with time. As early as 1971, the Port of Oakland formally requested study of the channel situation. First to be addressed was the Oakland Outer Harbor. In June 1972, per House of Representative's Resolution, the Corps of Engineers was directed to make a study of navigation improvements for Oakland.

The Corps of Engineers completed a Reconnaisance Report, conducted three public hearings, completed a Feasibility Report, issued an Environmental Statement and by January of 1979, the Corps' Chief Engineer's Office had approved and transmitted a navigation improvement project to Congress. No adverse environmental problems were reported. Unfortunately, due to lack of appropriation of funding, that project has not gone forward. The channel work has not been accomplished, but the bigger ships are here.

I am here today to urge appropriation of $2.7 million for the start of construction for these much needed channel improvements. We cannot put off deepening the federal channel network any longer. Technology has caught up with us. The new deeper ships are here now and our current channels are simply inadequate.

To illustrate the importance of this appropriation allow me to further describe the Port of Oakland's activities. In 1983, the Port of Oakland handled almost 11 million revenue tons of general cargoes—90% or almost 10 million tons of which were containerized cargoes. In 1983, the Port of Oakland accounted for almost 95% of all container cargoes passing through the Golden Gate. The historical export orientation of the Port has continued with the development of containerization. Oakland is the leading export port on the Pacific Coast and is the last port of call for many lines. During a typical month, over 40 container vessels sail directly from Oakland to overseas destinations.

The Port of Oakland, whose total value of export general cargo is estimated to approximate $5.3 billion, contributes positively and significantly to the United States balance of trade. We further estimate that this port generates almost $300 million in customs revenues and taxes paid to the U.S. treasury. Adequate channel depths are essential to the Port's continued ability to contribute positively to the nation's economic and financial well-being, as well as to our local community.

As a last port-of-call, container vessels sailing from Oakland with a wide variety of manufactured and agricultural exports, attempt to load to full cargo capacity and with maximum fuel. By nature, exports from the United States tend to have a greater density than lighter weight, higher cube import cargoes. New containership designs, coupled with the desirability of maximum loading, require that channel depths of 42 to 43 feet at mean lower low water to be provided as an absolute minimum. The high cost of modern containership operations does not permit vessels to wait for high tide conditions. Sailing delays necessitate increased speed and high fuel consumption at sea if schedules are to be maintained.

Details concerning the status of the Oakland Harbor Channel system are as follows:

The Port of Oakland terminal facilities are served by two major federal channels—the Outer Harbor Channel and the Inner Harbor Channel—both of which are now at 35' depth MLLW.

The Oakland Outer Harbor Channel is the main waterway to our Outer Harbor Terminal, Seventh Street Terminal, and the Army Military Ocean Terminal. The federal project will also include deepening the Entrance Bar Channel which also serves the Naval Supply Center. Almost 370 acres of the Port's marine terminal area are tributary to this channel. Of Oakland's annual 10 million revenue tons of containerized cargoes, over 7 million revenue tons passed through the Outer Harbor Channel. Two major U.S. flag carriers—Sea-Land Service and Matson Navigation—berth along this water route.

The present Outer Harbor Channel depth of -35' MLLW was established in 1945. In 1972, the Corps of Engineers was authorized to conduct an investigation of improving this channel to keep pace with the liner vessel design. The Final Feasibility Report was completed by the Army in February 1977 and recommended three basic improvements to the existing channels:

1. Deepen channel to -42 feet MLLW.
2. Realign channel dog-leg for safety factors.
3. Develop new turning basin.

The project has an impressive benefit/cost ratio of 5.3 to 1.0. Total federal project cost is $14.5 million. The average annual cost to improve the channel has been calculated to be only about one percent (1%) of annual duties and tax revenues derived from the Port of Oakland's shipping activities, which I believe is solid justification for the project.

The other portion of the Port's federal channel system is known as the Inner Harbor Channel. The last federal improvement to this channel was initiated in 1960, and in 1975, the channel was deepened from -30 feet MLLW to its present -35 MLLW feet. The width of the Inner Harbor Channel varies from 600 feet to 800 feet.

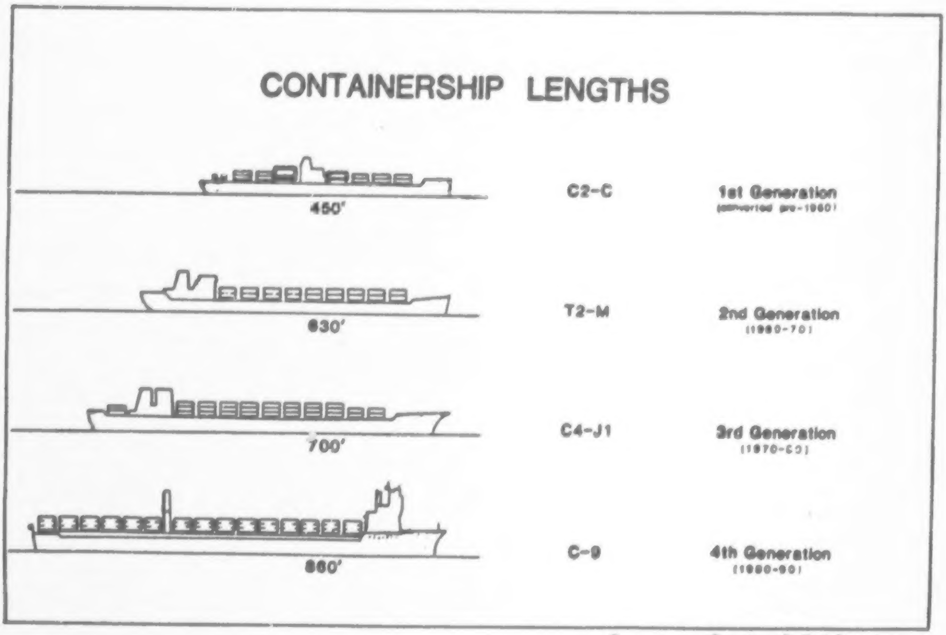
The present channel depth of -35 feet MLLW is insufficient to efficiently serve the new vessels using the modern container terminals developed along its shoreline. Present containerships are experiencing delays due to the inadequate channel depth and a newer generation of containerships.

The Inner Harbor Channel accounts for some 3 million revenue tons per year of containerized cargoes in Oakland. The Port of Oakland has 6 containership berths serviced by the Inner Harbor Channel. The Charles P. Howard Terminal, a new 50-acre container terminal constructed at a cost of $45 million was dedicated in October, 1982. Two U.S. Flag lines, American President Lines and United States Lines, have long-term commitments at their Inner Harbor Channel terminals.

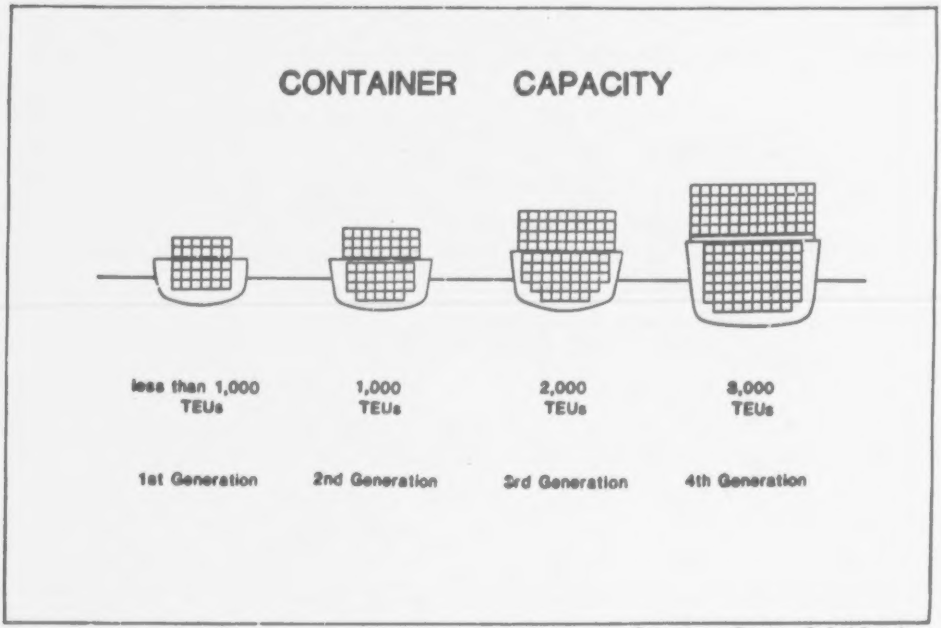
The Corps of Engineers Reconnaisance Report completed in 1981 and followed by the Phase II Study Report made the following findings:

1. A project to deepen the four-mile reach of the Oakland Inner Harbor Channel is both economically and ecologically feasible.
2. The project should include widening of the Bar Channel to the Oakland Harbor from its 800 ft. width to 1000 ft. width.
3. The recommended plan is to deepen the Inner Harbor Channel to -43 feet MLLW.
4. The benefit/cost ratio is determined to be a favorable 15.9 to 1.
5. Total federal project cost is calculated at $25.9 million.

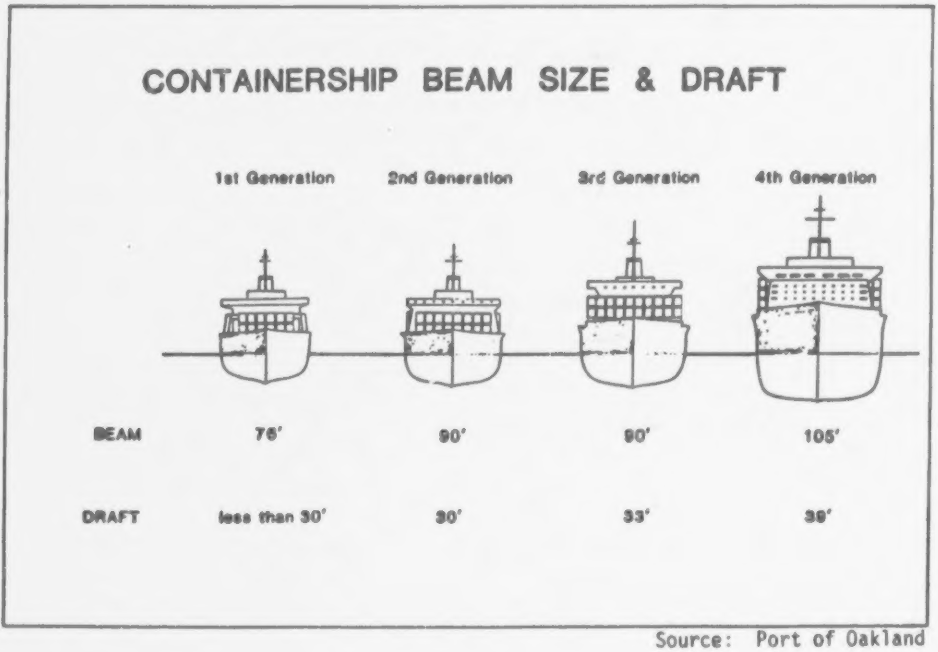
If the Port of Oakland is to continue its role in serving the economic and national defense needs of the local community, the region and the nation, work on these channel improvements must begin and we respectfully request appropriations to carry this work forward.


CONTAINERSHIP LENGTHS
450'
C2-C
1st Generation
(converted pre-1960)
630'
T2-M
2nd Generation
(1960-70)
700'
C4-J1
3rd Generation
(1970-80)
860'
C-9
4th Generation
(1980-90)

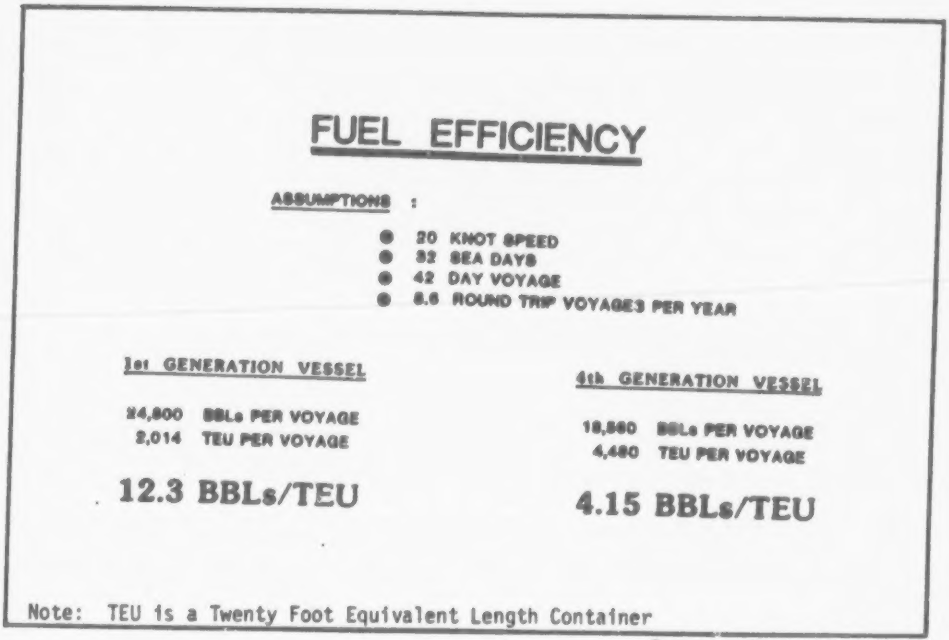
Source: Port of Oakland


CONTAINER CAPACITY
less than 1,000 TEUs
1,000 TEUs
2,000 TEUs
3,000 TEUs
1st Generation
2nd Generation
3rd Generation
4th Generation

Source: Port of Oakland


CONTAINERSHIP BEAM SIZE & DRAFT
1st Generation
2nd Generation
3rd Generation
4th Generation
BEAM
75'
90'
90'
105'
DRAFT
less than 30'
30'
33'
39'

Source: Port of Oakland



FUEL EFFICIENCY

ASSUMPTIONS :

- 20 KNOT SPEED
- 32 SEA DAYS
- 42 DAY VOYAGE
- 8.6 ROUND TRIP VOYAGES PER YEAR

1st GENERATION VESSEL	4th GENERATION VESSEL
24,800 BBLs PER VOYAGE	18,580 BBLs PER VOYAGE
2,014 TEU PER VOYAGE	4,480 TEU PER VOYAGE
12.3 BBLs/TEU	**4.15 BBLs/TEU**

Note: TEU is a Twenty Foot Equivalent Length Container

Source: Port of Oakland

PORT OF SACRAMENTO, CALIF.

STATEMENT OF MELVIN SHORE, PORT DIRECTOR, PORT OF SACRAMENTO

Mr. LANGNER. Melvin Shore, port director, Port of Sacramento.

Mr. SHORE. Thank you, Mr. Chairman.

I want to take this opportunity to commend the committee and its staff for its cooperation in funding this project over the years. For the past 15 years this study has been underway and the Corps of Engineers now advises that they have sufficient funds on hand for the purpose of completing the study phase. With the movement that is taking place in Congress on H.R. 3678 and S. 1739, the project authorization bills, we feel there is a good opportunity for authorization of this project along with others this particular year. As a result, our request is that we be included as we were in the supplemental bill that your committee is considering now for $1 million for construction during the upcoming year.

Thank you for the opportunity of testifying.

[The statement follows:]

STATEMENT OF MELVIN SHORE, PORT DIRECTOR, PORT OF SACRAMENTO

Summary of Request

Thank you, Mr. Chairman and members of the Subcommittee, for this opportunity to present testimony on behalf of the Sacramento River Deep Water Ship Channel deepening project. Following a twelve year study, the Feasibility Report was in 1981 approved by the Board of Engineers for Rivers & Harbors and continues to rest in the Office of the Secretary of the Army.

Model testing has greatly reduced the scope of mitigative measures originally contemplated for this project.

I understand that the Corps of Engineers will be able to complete continuing planning and engineering for the project in 1985 with funds presently available. That those funds are available is an accomplishment for which we want to express our thanks to you, Mr.Chairman, to the members of your Subcommittee, and especially to your colleague the Honorable Vic Fazio who has helped our project in so many ways over the last three years. May I urge your subcommittee to include new navigation project starts in your appropriations bill. I would specifically request that you include $1,000,000 for construction for the Sacramento project in that bill, as our project would be authorized by both H.R. 3678 and S. 1739. We are optimistic that a viable water projects bill will emerge this session from those two bills.

EXPECTATIONS EXCEEDED

When the Corps of Engineers studied the project (which ultimately led to the creation of the current channel and harbor) in 1955, they concluded that the project would be economically viable if on the average it handled 857,000 tons per year over the 50 year economic life. In our twentieth year (1983) the 30 millionth ton of cargo moved across the docks. By the Corps' projections, that should not have occurred until 1998. The level of cargo moving across the docks has reached as much as 3.25 million tons in one year. That level of activity should have occurred in the year 2060, by the Corps' projections. Thus by any measuring stick the Port has proven its worth.

NEED FOR DEEPER WATER

The bulk cargoes presently moving through the Port sorely require deeper water. Bulk cargoes require larger vessels to minimize the per-ton cost for ocean freight. To continue to successfully compete in the world markets, the Port's shippers must be able to charter larger vessels with deeper drafts. To do any less makes them non-competitive and destroys their ability to foster our country's exports.

Just two of the Port's cargoes will serve to demonstrate the need. Last year the majority of the ships loading grain for export at Sacramento has to be topped-off at deeper water. When the Port started its wood chip export program in 1967, the ports at the receiving end had only 27 feet of draft capability. At that time Sacramento's 30 feet was ample. Now those same receiving ports offer 12 meters (over 39 feet) draft.

In both these cases, the long term picture can only mean that Sacramento will gradually be bypassed and eventually wither and die if deepening is not accomplished. It should be pointed out that these exports contribute to helping solve the continuing United States balance of payments problem.

LOCAL SUPPORT IN JOINT VENTURE

I believe the development of the ports of this country over the last 200 years has truly been a joint venture between the federal government and the local interests. The existing Port of Sacramento will serve as an example. The federal government has spent a little over $40 million to construct the channel, harbor, barge canal and lock. The replacement cost of our cargo handling facilities is valued at $85 million. To accomplish this, we have sold bonds for over $41 million, plus added our income whenever possible.

B. C. RATIO

The Corps' Feasibility Report shows that the deepening of the channel to Sacramento will produce a 2.5 benefit-cost ratio when evaluated at the interest rate of 7 1/8%. Recent updating using the higher rate of 8 1/8%, the benefit-cost ratio remains at 2.5. Typically, navigation projects have not shown well at these high interest rates which adversely affect the B/C ratio by tending to minimize annual benefits and exaggerate annual costs. We expect the B/C ratio to increase when the cost of the originally anticipated mitigative measures is finally greatly reduced.

ADDITIONAL VALUES

Deepening the channel will also serve the energy conservation needs of the country. When ships can be fully loaded at the Port, it will avoid the need to move cargoes to more distant ports by land transportation means. It is even more dramatically evident now in the 1980's that water transport is many times more fuel-efficient per ton of cargo than land transportation. The needs of national defense will also be better served by making the Port more accessible to naval and merchant marine vessels that require the deeper draft.

Finally, it should be recognized that the location of new industries along the ship channel with their private berths is a national asset of considerable value.

BUDGET

We note the omission of the project from the President's budget. It is our undertanding that this omission is based on the fact that the new funding methods that the Administration is seeking have not yet been resolved. Yet, Mr. Chairman, there is considerable evidence that a solution will be forthcoming this year. It is most urgent that this project of deepening the channel be ready to go when that solution is forthcoming. It is with that in view that we are urging this appropriation.

SUMMARY

I wish to thank you, Mr. Chairman and your Subcommittee, both for your hearing this testimony and for your considerable past help in including and augmenting appropriations for the Sacramento River Deep Water Ship Channel deepening study.

The Port of Sacramento has well demonstrated its success in utilization of the Ship Channel at its present depth. Cargo handling developments in general and specifically at Sacramento clearly indicate the need for deeper draft to accommodate the larger ships handling bulk cargoes.

I respectfully urge your Honorable Committee to continue your fine efforts to break the seven year hiatus on new navigation projects starts in this country, and to include funding of $1,000,000 for construction for the Sacramento River Deep Water Ship Channel Deepening Project as a new start in your bill. This money would get this long-delayed project underway.

Santa Cruz Harbor, Calif.

STATEMENT OF BRIAN FOSS, MANAGER, SANTA CRUZ PORT DISTRICT

ACCOMPANIED BY BILL LEE, CHAIRMAN, PORT ENTRANCE SOLUTION COMMITTEE

Mr. Langner. Brian Foss, manager, Santa Cruz Port District.

Mr. Foss. Mr. Chairman, Mr. Langner.

I would like also to introduce Mr. Bill Lee, chairman of our entrance solution committee, and is the distinguished member being the designer, builder, owner, and skipper of the racing sloop *Maryland* which in 1977 won the trans-Atlantic race and set a world record which stands, and the Committee on Energy recognized Mr. Lee because he seemed to have harnessed a lot of energy very well.

For some 20 years the Federal Government has dredged Santa Cruz Harbor 100 percent. The port commission has recognized that there are now some fundamental financial constraints at the Federal level which may cause that continuing subsidy to be diminished or not at all. We, therefore, come to you today with a proposal to immediately implement a cost-sharing proposal that would solve the shoaling problem at Santa Cruz. The proposal would save the Federal Government 60 percent of what they are now spending, and that would be in 1985, and would save $18 million over the next 20 years. Our specific proposal we have submitted for the record. We have our share in the bank and we are ready to act, and we would hope that Congress could also act.

Thank you.

[The statement follows:]

STATEMENT OF BRIAN FOSS, MANAGER, SANTA CRUZ PORT DISTRICT

SUMMARY

The federal channel at Santa Cruz suffers from severe shoaling problems from November to April each year. Federal dredging is increasingly costly. It is also inadequate, leaving the harbor shoaled to zero water and unsafe up to 150 days per year. Santa Cruz Port District proposes to take over the dredging on a cost-sharing basis. The program would result in a year-round facility. It would also result in saving the federal government more than $18 million over the next 20 years.

SHOALING HISTORY

Santa Cruz Harbor entrance and jetty system were constructed in 1962, through the joint effort of the federal government and Santa Cruz Port District. The intended purpose of the harbor was for recreational boating, commercial fishing, and for use as a harbor of refuge. 1958 House Authorization Document 357 set forth the federal participation. Cost sharing was based on a 64.9% federal and 35.1% local (Port District) split. The original construction cost of the entrance and jetty system was $2,576,000 with $1,612,000 being federal and $964,000 being local.

House Document 357 anticipated that sand shoaling would occur. However, the volume of sand was unknown. The possibilities ranged between 30,000 cubic yards of littoral drift per year to 300,000 cubic yards. The Document provided that if the shoaling rate approached the latter figure, a permanent sand by-passing system would be provided to keep the harbor clear. Again, the 64.9/35.1 share basis was to be used. After 20 years of experience, it is painfully clear that the littoral drift is well in excess of 300,000 cubic yards per year. The harbor closes each year in approximately November and is only cleared after the federal dredging contract is completed in April.

The people of Santa Cruz are thankful for the federal support, but the contract solution is unacceptable. It leaves the harbor entrance shoaled to zero water and unsafe for up to five months per year. This closure is catostrophic. It shuts down an otherwise vibrant marine industry, which includes:

I. RECREATIONAL BOATING:

This industry needs activity to sustain itself. Santa Cruz is blessed with excellent winter weather, but there is no activity when the harbor is closed. In all, a $20 million industry and approximately 600 jobs are lost or reduced when the entrance is closed. 6,160 recreational boater days are lost.

II. COMMERCIAL FISHING:

This industry has been a part of Santa Cruz history since the mid-1800s. It continues to be an important cultural and economic activity. Over 100 commercial fishing vessels are now landlocked between November and April of each year.

III. HARBOR OF REFUGE

When the entrance is closed, the harbor cannot serve one of its intended purposes - which is to be a harbor of refuge for coastal sailors. Ironically, this occurs at the very time of year when "refuge" is needed most - winter. Breaking surf at the entrance has claimed 3 lives and approximately 150 vessels.

The United States Coast Guard has a rescue station in Santa Cruz Harbor. It serves the north Monterey Bay. The Coast Guard will not station its rescue boat in Santa Cruz during the shoaling season because of the impassability of the harbor entrance. The 41' rescue craft is moved to Monterey some 22 miles and 90 minutes from any emergency in our area. The Port District has filled this void by manning a smaller rescue craft which can sometimes make the hazardous passage. This procedure has helped many a victim but the toll has been two lost patrol craft over the last 8 years. In all, some 150 vessels and three lives have been lost in the entrance due to the shoaling hazard.

PROPOSAL TO SOLVE THE ENTRANCE PROBLEM

The federal dredging contract is expensive. The 1984 contract will approach $600,000. This provides for only two phases of dredging. It will still result in an entrance that is shoaled and unsafe from November to April.

It would require three or four phases of dredging to keep the harbor open all winter. The estimated cost would be approximately $1.2 million. There is a more cost-effective approach.

The Port Commission of Santa Cruz harbor proposes that the federal government and Santa Cruz Port District enter into a joint venture along the lines of the sand by-pass concept of 1958. However, the Port District desires a more comprehensive approach, including:

1) A COMPLETE RESEARCH AND DEVELOPMENT PROGRAM TO TARGET ON
   -reducing the amount of sand and surf in the harbor through:
   a) jetty reconfiguration
   b) localized buried pipeline bypass system

   The research and development program would include mathematical or computer modeling, physical modeling, and prototype testing.

   A complete program will probably cost about $600,000 and take five years. The Port District believes this is a necessary part of any permanent solution. The original legislation significantly under estimated the magnitude of the shoaling problem at Santa Cruz. The next step would be implementation of one or several permanent solutions at a cost which is unknown at this time.

2) IMMEDIATE PROCUREMENT OF A DREDGING SYSTEM

   The estimated cost of a suitable dredge system is $1.2 million. It would include:
   -12"-16" floating hydraulic dredge;
   -anchoring system;
   -work boat;
   -pipe.

   The Port District proposes that it identify and select the system with the Corps of Engineers' advice and review. The Port District would purchase 35.1% of its share of the system and finance or lease the residual 64.9% until the federal governemt's appropriation can be accomplished (FY 1985 or FY 1986). Such appropriation would then retire the debt. The Port District would operate the system with its resources with federal help as per Section 3b. This dredging system would be part of any future permanent solution. It is a Port District objective to have this sytem operational by October, 1984. If this system cannot be operational by October, 1984, the District requests 100% federal funding of 4-phase dredging for the winter of 1984-85.

3) CHANGING OF THE EXISTING LEGISLATION

a) Legislative change of HD357 is required so that procurement of a dredging system, as per item #2, will not legally close out the federal project, and will allow cost sharing on alternatives identified in item #1.

b) In addition, legislative change is also needed for the ongoing operational costs. The current document provides for federal support of the sand by-passing system in the amount of $35,000 per year. This figure reflects 1958 dollars only and was conceived at the time when the shoaling problem was estimated to be much less than actual. $35,000 was meant to be a significant proportion of the total. The Port District proposes that the yearly federal contribution be 64.9% of the total to reflect the original regional/local benefit. It is estimated that the Port District's total cost of operation would be approximately $400,000 per year in 1985 dollars. The federal share would be $259,600. This represents 44% of the current federal contract costs of a 2-phase dredging and would provide a year-round harbor.

4) CLEARING THE HARBOR ENTRANCE OF DEBRIS

Over the years tree stumps, and accumulated debris, have made hydraulic dredging increasingly difficult. Clearing this problem by clamshell-type dredging will facilitate the hydraulic dredging of sand for many years to come. This should be accomplished in the Spring of 1985 by federal contract.

5) SEALING THE EAST JETTY

In the Fall of 1983, the west jetty of the harbor was sealed so that sand could not penetrate through the jetty into the harbor channel. This has resulted in a significant reduction in volume of sand needing to be dredged. The east jetty is still porous and also needs sealing. A further reduction in the total volume of sand can be realized by such construction. This should be accomplished by federal contract.

CONCLUSION

By this proposal the Port District does not recommend or encourage any less interest in this federal project by the Corps of Engineers. The Corps has been instrumental in creating and maintaining the facility. They should be an integral part of its future. What is proposed here is an approach to improve a continuing federal project. It is time to take aggressive action in order:

- to insure the reliability and viability of Santa Cruz Harbor entrance;
- to reduce the hazard that perils all users of the harbor including commercial fishermen, recreational boaters, coastal sailors seeking refuge and coast and harbor rescue services;
- to reduce the federal financial burden as per the 1958 intent and the 1984 federal deficit.

The Santa Cruz Port Commission is prepared to act on this proposal financially, administratively, and operationally. We await concurrent action from the Congress and the Reagan Administration.

APPENDIX 'A'

RECENT HISTORY

Entrance Dredging

YEAR	TYPE DREDGING	OPEN DAYS	%
Winter 74-75	Annual Dredging (1 phase)	242	66
75-76	Annual Dredging (1 phase)	252	70
76-77	Annual Dredging (1 phase)	248	67
77-78	Four Phase Dredging	331	90
78-79	Four Phase Dredging	365	100
79-80	Four Phase Dredging	305	83
80-81	Four Phase Dredging	330	90
81-82	Two Phase Dredging	282	77
82-83	Two Phase Dredging	270	73
83-84	Two Phase Dredging	240	65

The above statistical analysis demonstrates the operability of the harbor versus the federal dredging effort. Note that 4-phase dredging kept the harbor open an acceptable amount of time. However, today's cost of such a contract would be in excess of $1 million per year. 2-phase dredging cost the federal government approximately $580,000 in 1984. Santa Cruz Port District's proposal would cut the yearly federal expense to approximately $259,000 in today's dollars. That computes to a savings of $18,385,000* over the next 20 years.

APPENDIX 'B'

	Jobs	Value	Daily Value	Seasonal Adjustment for Winter Nov-April	Seasonal Adjusted Daily Value In Dollars	Estimated Daily Loss Due to Harbor Closure	
Harbor-related Businesses:						% of Total	Dollar Value
Commercial Fishing Boats	100	$1.3 mil	$3,562	20%	$ 712	90%	$ 643
Related Fishing Industries	200*	$3.9 mil	$10,685	20%	$2,137	90%	$1,923
General Marine Tourism - charter boats; launching; fuel sales; chandlery sales; berthing; bait/tackle.	110	$1.2 mil	$3,288	20%	$ 657	80%	$ 526
Boat Building	70	$10 mil	$27,397	100%	$27,397	None	
Boat Repair/ Service	61	$1.3 mil	$3,562	60%	$2,137	20%	$ 127
New Boat Sales	13	$3.3 mil	$9,041	20%	$1,808	40%	$ 723
General Tourism in Harbor Stores/ Restaurants	200	$5.5 mil	$15,068	50%	$7,534	10%	$ 753
	854	$26.4 mil	$72,603		$42,392		$5,002

ESTIMATED 150-DAY LOSS DUE TO CLOSURE $750,300

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* Value of each pound of fish caught generates three times the ex-vessel value as it travels to the end user.

SANTA CRUZ HARBOR, CALIF.

REPORT OF THE CHIEF OF ENGINEERS, DEPARTMENT OF THE ARMY

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D. C., February 27, 1958.

Subject: Santa Cruz Harbor, Calif.
To: The Secretary of the Army.

1. I submit for transmission to Congress my interim report with accompanying papers on preliminary examination and survey of the coast of northern California from Point Pinos to the northern boundary of the State, including the San Francisco Bay area, with a view to the establishment of harbors for light-draft vessels, authorized by the River and Harbor Act approved July 24, 1946. This report considers Santa Cruz Harbor only. Reports on other harbors will be submitted later.

2. Santa Cruz Harbor is on the north shore of Monterey Bay about 65 miles south of the entrance to San Francisco Bay and 14 miles north of Moss Landing, the nearest small-boat harbor. San Lorenzo River flows through the city of Santa Cruz and empties into the harbor. The mean tidal range is 3.5 feet. There is no existing Federal project at Santa Cruz Harbor. In a recently completed beach-erosion report, the Chief of Engineers recommended Federal participation in beach protection in the area under consideration in this report. Local interests have constructed 2 piers in the harbor: 1, a private recreational pier extending 500 feet from shoreline to the 10-foot contour in the bay, and the other, a municipal wharf, extending 2,732 feet to the 32-foot contour.

3. The area tributary to Santa Cruz Harbor for recreational small-boat purposes includes all or parts of 10 nearby counties having a total population in 1950 of over 1 million. The coastal areas are developed predominantly for resort and recreational purposes while the interior areas are devoted principally to agriculture and the processing of agricultural products. The city of Santa Cruz, which had a permanent population of 22,794 in 1955, has on weekends about 45,000 during the winter and 100,000 during the summer vacation period. Seventy commercial fishing craft and seven sport-fishing vessels operate out of Santa Cruz Harbor during the summer. The commercial fish catch marketed at Santa Cruz in 1954 amounted to 1,223 tons, valued at $207,580. There are no fish canneries in Santa Cruz and all fish are either iced and shipped elsewhere or retailed locally.

4. Local interests desire a protected small-boat harbor at Santa Cruz to serve the existing fishing fleet and prospective recreational craft on a year-round basis. They suggest that Woods Lagoon, a low area behind the Twin Lakes beach about 0.5 mile east of the mouth of San Lorenzo River, be improved northward to the Southern Pacific Railroad for the harbor and that parallel rubble-stone jetties be provided to protect the entrance channel in the bay. In support of the project, local interests state that Santa Cruz is the foremost seaside resort in the highly developed coastal recreational area of northern California where sports fishing and boating are available during the summer months. However, these pursuits are limited be-

cause the sole means of protecting craft in the harbor from storms is by hoisting them onto the municipal pier by means of 1-ton davits located on the pier. Accordingly, the majority of boats using the Santa Cruz Harbor must be berthed at Moss Landing and Monterey Harbor, 25 miles south, from October through April. In addition, they state that during the storm season there are many extended fair-weather periods during which sports and commercial fishing could be carried on if a protected harbor were available at Santa Cruz. They further state that a protected harbor at Santa Cruz would be a harbor or refuge for local and transient recreational and fishing craft. Local interests have expressed willingness to cooperate in the desired improvement.

5. The district engineer finds that the most suitable plan for a small-boat harbor at Santa Cruz would provide for the improvement of Woods Lagoon, near the eastern boundary of the city, consisting of an entrance channel 100 feet wide, 20 feet deep, and 900 feet long, continuing 15 feet deep with the same width for an additional 370 feet; an inner harbor channel 15 feet deep, 150 feet wide, and 800 feet long, and continuing 10 feet deep for an additional 600 feet; a turning basin 10 feet deep, 250 feet wide, and 300 feet long; an east jetty 810 feet long; a west jetty 1.200 feet long; and a sand bypassing plant if needed. The plan would provide berthing space for 260 recreational craft and mooring space in the turning basin for the fishing fleet. The site has sufficient area to provide slips for the number of boats expected to use the harbor together with necessary service facilities. The dredge spoil is suitable for deposition behind bulkheads to be constructed by local interests and for needed maintenance of adjacent beaches. The plan, which would require the relocation of East Cliff Drive, would be adaptable to expansion in Woods Lagoon above the Southern Pacific Railroad when and if it becomes necessary. The district engineer has determined that the harbor jetties would interrupt the normal downcoast movement of littoral drift. Since the effect of such an interruption on the harbor channels and on the downcoast beaches can be determined only after the jetties are constructed, he proposes that initial channel maintenance be accomplished by ordinary biennial dredging with spoil deposited on the downcoast beaches to compensate for interruption of the natural littoral supply. However, if the rate of littoral deposition in the channels approaches 300,000 cubic yards annually, a sand bypassing plant would be installed and practically continuous dredging of the channels and placing of material on the downcoast beaches would be accomplished. Using December 1956 price levels, the district engineer estimates the first cost of the improvement, including the sand bypassing plant, at $2,576,000, of which $24,000 is for aids to navigation. The annual carrying charges are $155.000, including $48,200 for operation, maintenance, and major replacements of the sand bypassing plant. He estimates the average annual benefits at $254,540, consisting of $161,800 for recreational boating, $3,600 for sport fishing, $13,200 for land enhancement, $38,240 as the net value of increased fish catch, $30,000 for elimination of fishing-boat damage, and $7,700 for reduction in boat-operating costs. The benefit-cost ratio is 1.64. If the sand bypassing plant is not needed, the benefit-cost ratio would be 1.96. The district engineer concludes that the character and amount

of local benefits warrant a cash contribution by local interests toward the first cost of the general navigation features of the project, including the sand bypassing plant, if needed. Accordingly, he estimates that the Federal first cost would be $1,612,000, including $24,000 for aids to navigation, and the non-Federal first cost would be $964,000, including a cash contribution of $858,000, of which $118,000 would be for the sand bypassing plant. The district engineer recommends construction of the improvement in accordance with his plan, subject to certain conditions of local cooperation, with the provision that construction of the sand bypassing plant be deferred until such time as, in the opinion of the Chief of Engineers, the need therefor becomes evident. The division engineer concurs.

6. The president of the Beach Erosion Board concurs with the district engineer that the proposed jetties would cause accretion to the shore to the west and erosion of the shores to the east; and that neither the actual rate of drift nor the impounding capacity of the west jetty can be accurately predicted at this time. He is of the opinion that the annual shoaling rate may well reach several times the minimum amount of 25,000 cubic yards estimated by the district engineer. He concludes that the project, if authorized, should provide for sand bypassing as may be necessary to supply sand to the downdrift shore at the existing normal rate by such method as the Chief of Engineers may determine to be most suitable. He further concludes that prospective beach erosion damages would greatly exceed the bypassing cost and that bypassing is the least expensive method of averting those damages.

7. The Board of Engineers for Rivers and Harbors, having fully considered the reports of the district and division engineers, concurs in the views of the reporting officers and recommends improvement of Santa Cruz Harbor, Calif., to provide for a small-boat harbor in Woods Lagoon, in accordance with the plan of the district engineer, subject to certain conditions of local cooperation.

8. After due consideration of these reports, I concur in the views and recommendations of the Board of Engineers for Rivers and Harbors with the exception of the requirement that local interests control water pollution within the harbor to avoid conditions inimical to health. I recognize the desirability of controlling pollution but do not consider it necessary to include this as a requirement of local cooperation. Accordingly, I recommend improvement of Santa Cruz Harbor, Calif., to provide for a small-boat harbor in Woods Lagoon, consisting of an entrance channel 100 feet wide, 20 feet deep, and approximately 900 feet long, continuing 15 feet deep and the same width for a distance of 370 feet; an inner channel 15 feet deep, 150 feet wide, and 800 feet long, continuing 10 feet deep for an additional 600 feet; a turning basin 10 feet deep, 250 feet wide, and approximately 300 feet long; an east jetty 810 feet long, and a west jetty 1,200 feet long; and a sand bypassing plant; all generally in accordance with a plan of the district engineer and with such modifications thereof as in the discretion of the Chief of Engineers may be advisable, including deferment of construction of the sand bypassing plant until the need therefor becomes evident; at an estimated cost to the United States of $1,588,000 for construction, including $219,000 for the sand bypassing plant if needed, and $50,000 annually for maintenance, of

which $15,000 and $35,000 is for maintenance of the jetties and channels, respectively; provided that, prior to construction, local interests agree to: (*a*) contribute in cash 35.1 percent of the first cost of jetties, channels, and the turning basin, a contribution presently estimated at $740,000 to be paid in a lump sum prior to initiation of construction, the final allocation of cost to be made after the actual costs have been determined; (*b*) contribute in cash 35.1 percent of the first cost of the sand bypassing plant and appurtenances at such time as in the opinion of the Chief of Engineers its need becomes evident, a contribution presently estimated at $118,000; (*c*) provide without cost to the United States all necessary lands, easements, rights-of-way, suitable spoil-disposal areas, and a source of royalty-free jetty stone acceptable to the district engineer, for the construction and maintenance of the project, when and as required; (*d*) hold and save the United States free from damages due to the construction and maintenance of the project; (*e*) acquire and hold in the public interest sufficient lands for construction of the turning basin and public utilization thereof; (*f*) provide without cost to the United States bulkheads, levees, revetments, relocations, and all dredging in the berthing areas, as necessary for the construction and maintenance of the project and necessary berthing facilities and utilities, including a public landing with suitable supply facilities, open to all on equal terms, in accordance with plans to be approved by the Chief of Engineers: (*g*) provide or arrange for suitable marine-repair facilities; (*h*) maintain the entire project except the jetties and dredged depths in the entrance channel, the inner channel, and the turning basin subject to conditions stated in subparagraph (*i*) below; and (*i*) upon commencement of sand bypassing, assume the operation and maintenance of the sand bypassing plant and make replacements thereto, when and as required; and, further, maintain the dredged depths in the entrance channel, the inner harbor channel, and the turning basin, with the understanding that the United States will reimburse local interests for the actual cost of plant operation, maintenance and replacement up to a limit of $35,000 annually; and with the further understanding that the cost of any required channel or basin maintenance incurred by the United States will be deducted from the estimated $35,000 annual Federal reimbursement.

E. C. Itschner,
Major General, USA, Chief of Engineers.

West Newport Beach Harbor, Calif.

STATEMENT OF DONN HALL, MAYOR, COSTA MESA, CALIF.

ACCOMPANIED BY KENNETH SAMPSON

Mr. Langner. I note, Mr. Chairman, that they have the money ready to pay their share of the commitment and that is very impressive.

Senator Wilson. I agree.

Mr. Langner. City of Costa Mesa, Mayor Donn Hall.

Mr. Hall. Senator Wilson, we would like your support of the appropriation of $80,000 for a Corps reconnaissance study and, as the others mentioned, as far as funds and acting funds available for the project Costa Mesa is ready and willing to spend their share to support the study. A detailed statement is on file with the committee.

Thank you.

[The statement follows:]

Statement of Donn Hall, Mayor, Costa Mesa, Calif.

The West Newport Beach Harbor-Costa Mesa was authorized as a Federal project 9 years ago but unfunded.

For the past 5 years we have actively attempted to secure funding for a feasibility study at an estimated $600,000.

Now, in accordance with newly adopted procedures, we respectfully request an appropriation of only $80,000 to initiate and complete a reconnaissance study.

By such reconnaissance study, preliminary feasibility can be determined and provide guidance for future action. If such study indicates, a viable project procedure should be expedited; if not, local and Federal efforts should be redirected.

Port of San Luis Harbor, Calif.

STATEMENT OF STEWART JENKINS, COMMISSIONER, PORT SAN LUIS HARBOR DISTRICT

Mr. Langner. We have Stewart Jenkins, Port San Luis Harbor District, commissioner.

Mr. Jenkins. Thank you.

Thank you, Senator Wilson, for mentioning Port San Luis' shape. We appreciate that.

We have submitted a written statement and I won't go over it.

We are bringing this to the committee today and I hope it is just the way we run Port San Luis. We are a very small place. We are not asking for very much money this year.

Our commission still gets called out whenever there is an emergency to help in rescue efforts. I am tired of going out and watching ships wrecked on our rocks every time there is a southerly storm coming and we would sure appreciate your help.

Thank you.

[The statement follows:]

STATEMENT OF STEWART JENKINS, COMMISSIONER, PORT SAN LUIS HARBOR DISTRICT, CALIFORNIA

The Port San Luis Harbor District was formed in 1954 and since that time we have worked with the Congress of these United States and the U.S. Army Corps of Engineers to improve our Port.

The Congress has AUTHORIZED the Port San Luis Project and has funded Comprehensive studies by the Corps.

The world and our nation is in a period of change and for that reason our District and the Corps of Engineers believe it would be appropriate to make a RE-EVALUATION STUDY of our Port.

The Corps has a $700,000 CAPABILITY in the next fiscal year and we urge that an APPROPRIATION be made in this amount to determine the proper direction of development at Port San Luis.

Additional BREAKWATER STRUCTURES are a necessity at Port San Luis, as the harbor has NO SOUTHERLY PROTECTION!!

The Southerly Storms of 1983 created 23 MILLION DOLLARS in damage, which included TOTAL DESTRUCTION of the Union Oil Pier, EXTENSIVE DAMAGE to the Avila Pier and damage to the Hartford (Port San Luis) Pier. The shoreline rock reveted face, roadway and recreation facilities were also demolished.

SEE ATTACHED photos documenting the destruction wrought by these tremendous 1983 storms.

Despite a 24 hour "storm watch", THIRTY-EIGHT Vessels were TORN form their moorings and ELEVEN boats were TOTALLY DESTROYED!!

We urge your thoughtful consideration of our request for the $~~6~~700,000 RE-EVALATION study at Port San Luis, which should design BREAKWATERS that will protect lives, vessels and facilities at Port San Luis.

PORT SAN LUIS, LOCAL CASUALTY OF OFF SHORE OIL LEASING

Port San Luis is a small Harbor serving a small fleet of fishing boats and sail boaters. The small protected area in the harbor is now filled to capacity with boats generally under 35 feet long.

U.S. Interior leasing of Off Shore Oil areas has placed Port San Luis near the center of vast new drilling areas off California's Central Coast.

As a result, great pressure is now on Port San Luis to accommodate 110 foot Crew Boats, 400 foot barges, and 200 to 300 foot off shore supply vessels.

All other harbors in or near the new drilling area have refused to serve those off shore oil vessels. Port San Luis is presently too small to serve any of these newly arrived, large vessels. Virtually no new capacity to serve larger vessels is possible without additonal protected water somewhere along the Central Coast of California.

The advent of these large boats potentially makes obsolete the present authorized project of the Army Corps of Engineers for Port San Luis.

It is appropriate that the Federal Government should now assist Port San Luis in dealing with these burdens of Off Shore Oil Drilling, having now exposed Port San Luis to this intense navigational activity. Local fishermen and tax payers should not alone bear the burdens generated by supplying the rest of the nation with needed fuels.

Port San Luis urges you to appropriate the $700,000.00 necessary for the Army Corps of Engineers to perform a RE-EVALUATION STUDY of our harbor to update their authorized project and to provide needed new protection.

SAN FRANCISCO BAY AND SACRAMENTO-SAN JOAQUIN AREA PROJECTS

STATEMENT OF FRANK C. BOERGER, CONSULTING ENGINEER, NORTHERN CALIFORNIA PORTS AND TERMINALS BUREAU, INC.

Mr. LANGNER. Frank Boerger, consulting engineer for the Northern California Ports and Terminals Bureau.

Mr. BOERGER. Senator Wilson, I have submitted a statement for the record and I am just going to make one quick comment. The Northern California Ports and Terminals Bureau is a cooperative organization representing the eight ports that traverse through the Golden Gate to get into their channels. They have been working cooperatively to try and promote trade in northern California. One of the important things that was discussed this morning in the House hearings was the need for the authorization bills that are necessary to establish general deepening projects in order to maintain this port system as a viable port system in the world trade to get under the shipping fleet and we would certainly urge your support for that, for those authorizations as well as for the funding of the project necessary to achieve the results required.

Thank you very much for the opportunity to appear.

[The statement follows:]

STATEMENT OF FRANK C. BOERGER, CONSULTING ENGINEER, ON BEHALF OF THE NORTHERN CALIFORNIA PORTS AND TERMINALS BUREAU, INC.

This testimony is presented on behalf of the Northern California Ports and Terminals Bureau, Inc. (NORCAL), a nonprofit corporation which represents the ports of the San Francisco Bay and the Sacramento-San Joaquin Delta areas. NORCAL specifically includes the public ports of Oakland, Redwood City, Richmond, Sacramento, San Francisco, and Stockton, and the privately owned ports Encinal Terminals in Alameda and the Port of Benicia. These ports support our State and many States to the east through our vast rail and highway transportation systems and serve, through the Golden Gate, the ports of the world, with particular emphasis on the Pacific trading partners.

One of the most important aspects of the facilities that are provided at these ports is the depth of water in the channels that permit ships to enter and depart from the various terminal facilities. These channels have served the ports and the Nation well during years of war and peace, but must continue to be maintained to provide adequate depths of water for the modern world shipping fleet. It is for that reason that NORCAL urges your committee to provide funds not currently shown in the President's budget to provide for additional work to modernize these channels so that the NORCAL ports can remain competitive with other ports around the world in providing for international trade. Three of these important projects have not yet been authorized by the Congress and we urge your help in making that possible this session.

In the meantime, it would be prudent to provide funds for the Oakland inner harbor deepening, the Richmond Harbor deepening, and the Sacramento deep-water ship channel. NORCAL recommends that all three of these projects proceed with continuation of planning and engineering studies in the following amounts:

Oakland inner harbor.—$340,000 to initiate the planning and engineering studies and $2.4 million if some additional fiscal year 1984 funds are obtained in order to initiate construction.

Richmond Harbor.—$300,000 to initiate the design studies.

Sacramento deep-water ship channel.—$875,000 to complete the design studies.

The San Francisco Bay area in-depth study is in progress. Funds are needed to continue the studies; a total of $453,000 is recommended. Of that, $254,000 would be used to complete interim study No. 4 on the collection and disposal of debris, and $199,000 will be used to complete a study of the Port of Redwood City needs.

An authorized navigation study that has not yet been started is entitled, "The San Francisco Bay and Tributary Deep Water Ports Dredging Study." A total of $500,000 is needed to initiate and complete the reconnaissance phase of that study in order to provide an initial overall appraisal of the needs of the future in connection with the maintenance of the bay area ports.

Finally, although we are not recommending any increase over the President's budget for this construction project, we would like to thank you for the appropriations made in the past and for the continuation of the funds for the very important San Francisco Bay to Stockton project known as the John F. Baldwin and Stockton ship channels. The $18.4 million in the President's budget for this important project will complete the Stockton Channel and initiate construction of the West Richmond phase of the project that will be very important to the ports and industries in that area.

California Navigation and Related Projects

STATEMENT OF ROBERT H. LANGNER, EXECUTIVE DIRECTOR, CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE

Mr. Langner. Senator Wilson, when I first appeared before this committee 26 years ago we were asked to adopt a certain project on behalf of the State of California and one of these has been the coastal erosion project. So we are not taking in an orphan project which is only our concern, but everyone's concern.

I will not take the committee's time now. I have submitted a detailed statement and funding recommendation for our group. I ask that that be included.

Senator Wilson. Yes, it will

[The statement follows:]

STATEMENT OF ROBERT H. LANGNER, EXECUTIVE DIRECTOR, CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE

Almost exactly a year ago, it was my privilege to testify for the 25th consecutive year before this Subcommittee on behalf of California navigation and related public works projects — the action having been kindly noted in the **Congressional Record**. Today therefore represents the beginning of a second quarter century of such representation and support through the California Marine Affairs and Navigation Conference of funding to meet the needs of the Golden State.

The most facile method of preparing today's testimony to you would have been review of and extraction from 25 years of statements presented to you and your predecessors. Indeed, while Government policies have shifted and priorities have changed (witness the unique lack of project authorizations), the needs of navigation and water-related recreation and their benefits to California and the nation have not diminished. The problems attendant to their realization, improvements and maintenance have in fact increased over the two-and-a-half-decades and often have become more intractable. So — to "accentuate the positive and eliminate the negative", there will be minimal citation of past and current difficulties, but rather, focus on the promising and potential.

First, while the dynamics of navigation have changed over the years, our dependance on this most-efficient means of moving cargoes has grown rather than diminished. Similarly, with both California and the nation's population still rising, water-related recreation continues as the most popular form, with boating in the forefront.

In both instances, California maintains it leading role. For example, Los Angeles-Long Beach vessel arrivals in 1983 again led the nation, and together with Golden Gate traffic, accounted for 10,160 arrivals of the 37,992 total, or almost 27% of the traffic at the leading eleven port areas.

The steady rise in California's share of total U.S. world trade, as reported to you each year, also continues. The State is blessed with a combination of resources, population and technology as to afford highly productive agriculture, on the one hand, and the fruits of "Silicon Valley" and other high technology areas, on the other, contributing to a rich and competitive export volume.

Location, climate and resources similarly assure the Golden State's strategic role in the nation's security. And it also enjoys major fisheries.

These roles and contributions to the national well-being of course require continued, significant investments, of which public ports and other official entities, as well as industry, provide the major portion. But the traditional role and responsibilities of the Federal Government must also continue, in the planning, design and engineering, construction and maintenance of navigation and harbor projects, beach erosion control and similar public works. Changing priorities, shifting policies and a seemingly continuous stream of proposals to reallocate these responsibilities and shift a portion or major part of funding to non-Federal sources have so far resulted largely in confusion, hurting delays of projects, and unproductive divisions among those — public and industry — primarily responsible for such public works.

It is our deep and continuing belief, after tracking our own projects — initially in Northern California — since 1956, that expenditures of the kinds of projects C-MANC espouses are good investments indeed. But we share — regrettably — with other areas of the nation decline in the proportionate amount of funding allocated in recent years to public works. Overall, for example, a 1983 report by the Associated General Contractors indicated that such funding dropped in the last 20 years from 4.1% to 2.3% of the GNP — a dramatic decline of 44%.

Well recognized is the continuing awareness and concern of this Subcommittee with the issues: the increase in income-transfers and social service program funding and the acknowledged, critical need for constraints and reduction of ever-increasing Federal budget deficits. America is obviously not unique among the developed countries in such fiscal confrontations. Yet as the most affluent and productive in the total context of all nations, our record is often lacking in comparision with our leading competitors in world markets, who seem to find sufficient consensus to allocate a more adequate portion of their wealth to maintain and improve the efficiency of their harbors and waterways — their "gateways to the world".

Increasing awareness that Space Age impact on security considerations has proportionately lessened, while the the sea has correspondingly resumed its more traditionally critical role, should focus attention upon the quality of the infrastructure necessary to sustain our waterborne defense capabilities. It is obvious even to the layperson that our survival may ultimately depend as much or more upon our ability to maintain sea routes and logistical support, interdiction and reinforcement — hopefully, only as a capability and not required to be fully demonstrated — than upon ICBMs and other ever-more-sophisticated nuclear weapon delivery systems.

Ports and waterways of the nation are a critical element in such capabilities, and should more often be considered in the context of their defense and national security significance. Federal responsibilities — not those of state and local public bodies, which constitute the majority of U.S. ports.

These comments and observations of course are not specifically supportive of C-MANC's 26th annual recommendations to the Congress, for the funding of California projects, the schedule of which is appended to this statement. On hand are a number of our members — project sponsors and supporters — together with members of the California Delegation, to provide individualized testimony and statements on many of these studies and projects. But although some will not be represented here today by such direct input, nevertheless, all of those listed have been carefully considered and our recommendations unanimously adopted by C-MANC's membership. They have our full endorsement. Your careful consideration, as always, of our recommendations will have our continued warm appreciation.

Mr. Chairman, the reception and attention always given by this Subcommittee to our annual presentations has my warm, personal thanks and I hope that I will be privileged to continue next year in presenting once again C-MANC's statement and our many witnesses and supporters who are now on hand.

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Attached: Funding Recommendations

(Amounts In Thousands)

Projects	Total Cost C of E	Balance After FY 1983	FY 1984		FY 85 President's Budget	CMANC FY 85 Requests	Purpose of New Funding
			Conference Allowance	Work* Allowance			
			CONTINUATION OF PLANNING AND ENGINEERING STUDIES				
Oakland Inner Harbor	26,500 (630)	(630)	(200)	(25)	(0)	340	To initiate CPE
Oakland Outer Harbor (Deepening)	15,400 (220)	(0)	(0)	(0)	(0)	2,400 (0)	If additional FY 84 funds obtained, FY 85 construction start possible
Richmond Harbor	49,900 (600)	(600)	(0)	(0)	(0)	(300)	Initiate design studies
Sacramento River Deep Water Ship Channel	83,300 (2,500)	(1,675)	(1,700)	(800)	(0)	(0)	Complete design studies
			ADVANCE ENGINEERING AND DESIGN				
Noyo River and Harbor (Breakwater)	6,380 (1,300)	(711)	(184)	(184)	(0)	(350)	Continue design studies
			NAVIGATION STUDIES IN PROGRESS				
Coast of Northern California (Harbors for Light Draft Vessels)	1,100	189	0	0	0	189	Complete study (Moss landing)
Los Angeles-Long Beach Harbors (Including San Pedro Bay Model)	6,526	117	256	117	0	1,000	To initiate CPE
Morro Bay Harbor	1,050	896	0	0	0	230	To resume study
North Coast of Los Angeles County	785	620	0	0	0	250	To resume study and expand scope
Oceanside Harbor	780	100	0	0	0	200	Complete study
Redondo Beach Harbor (King Harbor)	700	661	85	85	0	200	Continue study
San Francisco Bay Area (In-Depth)	3,110	453	0	0	147	453	Continue interims for Redwood City and Collection and Disposal of Debris
Int #4 (Collection & Disposal of Debris)	(440)	(254)	(0)	(0)	(147)	(254)	To complete study
Int #5 (Redwood City Harbor)	(386)	(187)	(0)	(0)	(0)	(199)	To complete study
San Francisco Bay Shoreline	3,555	2,430	600	600	420	795	Alameda and Santa Clara Counties interim study
Int #1 (Alameda & Santa Clara)	(1,470)	(825)	(500)	(500)	(120)	(325)	(Sept. 85) and San Mateo County interim study
Int #2 (San Mateo)	(1,180)	(800)	(0)	(0)	(300)	(470)	(Sept. 86) are underway
Int #3 (North Bay) -- White Slough	(905)	(805)	(100)	(100)	(0)	(0)	
San Leandro Bay	875	825	0	0	0	160	Continue study
Santa Barbara Harbor	620	620	0	0	0	320	To initiate study

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*Reflects assigned savings and slippage and other adjustments

Projects		Total Cost C of E	Balance After FY 1983	FY 1984 Conference Allowance	FY 1984 Work* Allowance	FY 85 President's Budget	CHAMC FY 85 Requests	Purpose of New Funding
NAVIGATION STUDIES IN PROGRESS (Continued)								
Sunset Harbor		645	25	50	25	0	175	Continue study
SHORE PROTECTION STUDIES IN PROGRESS								
Point Mugu to San Pedro Breakwater		1,250	1,126	0	0	0	450	To resume study
Santa Barbara County		775	684	0	0	0	300	To resume study
NAVIGATION STUDIES NOT STARTED								
Humboldt Harbor & Bay (Deepening)		750	750	0	0	0	300	
San Francisco Bay and Tributary Deep Water Ports (Dredging)		850	850	0	0	0	500	Initiate and complete reconaissance phase of study
Santa Cruz Harbor		115	115	0	0	0	115	Initiate and complete reconaissance phase of study
Ventura Marina		625	625	0	0	0	250	Initiate and complete reconaissance study
West Newport Beach Harbor		600	600	0	0	0	80	Initiate and complete reconaissance phase of study
SPECIAL STUDIES								
Coast of California, Storm and Tidal Waves		7,410	6,385	1,000	925	700	1,500	Scope of effort includes entire coast of California
CONSTRUCTION PROJECTS								
Bodega Bay	(N)	1,150	565	0	0	0	2,095	Reimburse local interests for project construction
Fisherman's Wharf Area	(N)	6,300	6,300	0	350	3,000	5,000	To initiate construction
Noyo River and Harbor (Channel Extension)	(N)	1,870	1,870	0	0	0	1,000	To initiate construction
Port Hueneme	(N)	3,380	2,099	0	0	0	300	To complete A&D for Phase III
Port San Luis	(N)	3,380	3,380	0	0	0	700	Continue engineering and design
Sacramento Deepwater Ship Channel	(N)	83,300	83,300	0	0	0	1,000	To initiate construction
San Diego River and Mission Bay	(N&FC)	21,600	9,730	0	0	0	250	No requirement pending completion of design studies, after which about $150 will be required for plans and specification Modifications may require Congressional authorization
San Francisco Bay to Stockton (John F. Baldwin and Stockton Ship Channels)	(N)	203,000	185,317	9,000	8,315	18,400	18,400	$6,000 (to complete Stockton portion) and $12,400 (West Richmond Channel) to continue construction
Imperial Beach	(BE)	3,340	2,493	2,000	2,000	493	493	Complete construction
Surfside-Sunset and Newport Beach	(BE)	32,200	25,831	3,800	3,800	0	0	Current phase to be completed in FY 84

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*Reflects assigned savings and slippage and other adjustments

Projects	FY 83 Estimated Obligations	FY 1984 Estimated Obligations	FY 85 President's Budget	CMANC FY 85 Budget req.	Purpose of New Funding
OPERATIONS AND MAINTENANCE PROJECTS					
Bodega Bay Harbor	0	0	0	0	Channel depths adequate for current use.
Channel Islands Harbor	2,150	295	0	2,300	Dredge sand trap.
Crescent City Harbor	1,342	1,877	1,750	2,100	To repair dolosses section on breakwater.
Dana Point Harbor	453	81	0	500	
Humboldt Harbor and Bay	7,568	3,960	3,296	5,000	$2,000 to initiate repair of dolosses and remainder for dredging.
Los Angeles-Long Beach Harbors	2,302	997	600	1,200	To complete dredging mouth of LA River.
Los Angeles-Long Beach Harbors Model	113	711	130	1,000	
Marina Del Rey	0	0	0	1,200	Dredge Entrance Channel
Morro Bay Harbor	1,490	832	0	1,500	Dredge Entrance, Navy & South Morro Channel.
Moss Landing Harbor	60	676	0	0	Dredge Entrance Channel and Turning Basin.
Napa River	106	0	0	0	Channel depths adequate for current use.
Newport Bay Harbor	0	0	0	150	Dredging necessary to maintain harbor depth.
Noyo River and Harbor	671	1,182	0	500	Dredge entrance and river channels.
Oakland Harbor	1,740	1,787	1,534	1,800	Dredge Inner and Outer Harbor Channels.
Oceanside Harbor	80	884	800	1,200	Normal Dredging.
Oceanside Sand By-Pass System	821	3,679	0	1,500	Construct sand by-passing plant.
Petaluma River	706	1,000	0	0	
Port Hueneme	1,276	214	0	0	
Port San Luis	626	52	0	0	
Redondo Beach Harbor (King Harbor)	264	194	0	0	Harbor depths adequate for current use.
Redwood City Harbor	56	3,132	3,130	5,000	Dredge entrance and inner channels.
Richmond Harbor	524	3,287	2,080	5,000	$1,500 for routine dredging plus $3,500 for retaining dike repair.
Sacramento River				3,100	
Sacramento River (30 ft.)	1,420	1,273	3,037	(3,000)	
Sacramento River - (Shallow Draft)	48	109	105	(100)	
San Diego Harbor	455	276	0	0	
San Diego River and Mission Bay	3,363	809	0	0	
San Francisco Bay - Delta Model Structure	1,746	1,396	940	1,000	
San Francisco Harbor	1,465	704	1,363	2,400	Dredge Bay and entrance channel.
San Joaquin River	924	220	2,260	2,260	Rock revetment and dredging.
San Leandro Marina	45	400	0	0	
San Pablo Bay and Mare Island Strait	1,909	3,151	6,077	7,000	
San Rafael Creek	0	0	0	0	Harbor depths adequate for current use.
Santa Barbara Harbor	658	1,397	0	1,000	Dredge entrance channel.
Santa Cruz Harbor	677	590	0	1,300	Dredge harbor & entrance channel and west jetty.
Suisun Bay Channel	614	733	711	711	
Suisun Channel	0	0	0	0	Channel depths adequate for current use.
Ventura Harbor	2,443	267	2,500	2,900	Dredge harbor.
Drift Removal (S.F. Harbor and Bay)	1,013	1,227	1,198	1,500	
Hyacinth Control	0	0	0	100	

STATEMENT OF RICHARD E. MILLARD, PRESIDENT, RICHARD E. MILLARD & ASSOCIATES

ACCOMPANIED BY ROSEMARY MILLARD

Mr. LANGNER. Speaking on behalf of this language is Richard E. Millard of Richard E. Millard & Associates.

Mr. MILLARD. Mr. Chairman and distinguished members of the committee, it is with pleasure that we again appear to submit our request and recommendation for the record and have the opportunity to discuss the need and importance of continued funding for the coast of California. As you know, the study has been developed and approved with responsible planning, in short the data base for planning purposes.

Now you are again faced with a funding decision. Seldom does Congress have an opportunity to solve problems before they exist. All too often they are called upon to rescue you after some disaster. It is like closing the barn door after the horse is out. We are here to ask you to allocate $1.5 million in fiscal year 1985 budget for the continuation of study and work expansion to the remainder of the California coast.

[The statement follows:]

STATEMENT OF RICHARD E. MILLARD, ON BEHALF OF THE CALIFORNIA MARINE AFFAIRS AND NAVIGATION CONFERENCE

Mr. Chairman and distinguished members of the Committee, it is with continued pleasure that we again appear before you to submit our request and recommendations for the record, and to have the opportunity to discuss with you the recognized need and importance of funding for the continuation of the Coast of California Storm and Tidal Waves Study.

Pursuant to Section 208 of the Flood Control Act of 1965 (P.L. 89-298), which allows surveys to be made under the direction of the Corps of Engineers for floods aggravated by or due to wind or tidal affects, the Engergy and Water Development Appropriations Committee in its studied wisdom, recognized the vital need for a planning tool to reduce and, where possible, to prevent the harmful effects of severe cliff and shoreline erosion, the disappearance of wide sandy beaches, and the filling-in of harbors and navigation channels with sand. The result was that the Committee in the 1st Session of the 97th Congress established the Coast of California Storm and Tidal Waves Study. That Bill in 1981 funded an initial effort on a short stretch of California's most southern shoreline. That effort commenced in 1982.

Because of the reception of, and the need for, a comprehensive, all-encompassing, coastal processes study, the Committee in its continuing wisdom expanded the Study to include the entire 1100-mile coastline of California. The Study is to develop the guidelines for prudent and responsible planning, engineering, development, and management of that valuable natural resource. In short, the data base for planning purposes on projects on the entire California coast. And the methodology developed is being formulated so that it can be used for coastal studies along any of the Nation's shorelines.

As a result of the Committee's desire that the Study be expanded to include the entire California coast, the Corps of Engineers conducted efforts in 1983 from the U.S.-Mexican border to just south of San Francisco Bay - almost half of the entire California coast - to include San Diego County, Orange County, Los Angeles County, Ventura County, Santa Barbara County, San Luis Obispo County, Monteray County, and Santa Cruz County.

Progress to date by the Corps of Engineers includes completion of the General Plan of Study; shoreline change maps and geomorphology report of the Southern Region; installation of wave gages at Imperial Beach, Mission Bay, Del Mar, Oceanside, and San Clemente; and public coordination with local agencies as far north as Santa Cruz. And the first Annual Report will be distributed this month. That April 1984 report will summarize all the work completed to date and will inform the reader of all data collected and reports available.

With Study data now becoming available to planners, engineers, developers, and managers, interest is being expressed all along the coast of California. The California Marine Affairs and Navigation Conference, working closely with the South Pacific Division the the Corps of Engineers, recognizes this need and its importance to the entire coastline of California and the adjacent uplands. We therefore urge that the Study remain a coast-wide program under the direction and guidance of the South Pacific Division of the Corps of Engineers.

Now this Committee is again faced with the decision of funding for continuation of the Study. Seldom does an opportunity come along to solve a serious problem before it exists - all too often Congress is called upon to come to the rescue of society during the declaration of an emergency resulting from some disastrous event. This is analagous to "closing the barn door after the horse is out".

We are here to ask you to carefully consider the importance of continuing this vital Study and to allocate $1.5 million in the FY 85 budget to accomplish that. Planning for efficient and cost-effective protection and maintenance of our Nation's shorelines remains one of our highest priorities. We therefore support, endorse, and urge funding $1.5 million in the FY 85 budget for the continuation of the Coast of California Storm and Tidal Waves Study and for its expansion to the remainder of the California coast.

We want to also take this opportunity to thank you for your considerations and funding of the Study over the past several years and for providing us with the start of a valuable implement to define, understand, and predict coastal changes resulting from both natural conditions and human-related development and activity.

Thank you.

VERBAL TESTIMONY

MR. CHAIRMAN AND DISTINGUISHED MEMBERS OF THE COMMITTEE, IT IS WITH PLEASURE THAT WE AGAIN APPEAR TO SUBMIT OUR REQUEST AND RECOMMENDATIONS FOR THE RECORD, AND TO HAVE THE OPPORTUNITY TO DISCUSS THE NEED AND IMPORTANCE OF CONTINUED FUNDING FOR THE COAST OF CALIFORNIA STORM AND TIDAL WAVES STUDY.

AS YOU KNOW, THE STUDY IS TO DEVELOP THE GUIDELINES FOR PRUDENT AND RESPONSIBLE PLANNING, ENGINEERING, DEVELOPMENT, AND MANAGEMENT FOR PROJECTS ON THE ENTIRE CALIFORNIA COAST - IN SHORT, THE DATA BASE FOR PLANNING PURPOSES.

PROGRESS TO DATE BY THE CORPS OF ENGINEERS INCLUDES COMPLETION OF THE PLAN OF STUDY, MAPS AND REPORTS FOR THE SOUTHERN REGION, INSTALLATION OF WAVE GAGES AT FIVE STATIONS, AND EXPANSION OF THE STUDY TO INCLUDE PUBLIC COORDINATION IN EIGHT COUNTIES FROM THE U.S.-MEXICAN BORDER TO SANTA CRUZ - ALMOST HALF OF THE ENTIRE 1100-MILE CALIFORNIA COAST. AND THE FIRST ANNUAL REPORT WILL BE DISTRIBUTED THIS MONTH.

NOW YOU ARE AGAIN FACED WITH A FUNDING DECISION. SELDOM DOES CONGRESS HAVE AN OPPORTUNITY TO SOLVE PROBLEMS BEFORE THEY EXIST - ALL TOO OFTEN THEY ARE CALLED UPON FOR RESCUE AFTER SOME DISASTER. ITS ANALAGOUS TO "CLOSING THE BARN DOOR AFTER THE HORSE IS OUT". WE ARE HERE TO ASK YOU TO ALLOCATE $1.5 MILLION IN THE FISCAL YEAR 1985 BUDGET FOR THE CONTINUATION OF THE STUDY AND FOR ITS EXPANSION TO THE REMAINDER OF THE CALIFORNIA COAST. C-MANC SUPPORTS AND ENDORSES SUCH FUNDING AND URGES THAT THE STUDY REMAIN A COAST-WIDE PROGRAM UNDER THE DIRECTION OF THE CORPS OF ENGINEERS' SOUTH PACIFIC DIVISION.

WE'LL BE GLAD TO ANSWER ANY QUESTIONS REGARDING THE STUDY OR OUR REQUEST FOR FUNDING. THANK YOU.

(delivered by richard e. millard, president of richard e. millard and associates, inc. and director of the california marine affairs and navigation conference before the house and senate committee at washington, d.c. on april 5, 1984)

ADDITIONAL PREPARED STATEMENTS

Mr. LANGNER. With that, Mr. Chairman, we say thank you. There are some prepared statements which have been submitted and I again ask that they be made part of the record.

Senator WILSON. Yes. I want to thank you for your testimony here today. It has been helpful and I know the committee appreciates your appearance here.

[The statements follow:]

STATEMENT OF CHARLES F. CONNORS, DEPUTY EXECUTIVE DIRECTOR, PORT OF LONG BEACH

I am Charles F. Connors, Deputy Executive Director of the Port of Long Beach, California. I have been authorized by the Board of Harbor Commissioners of the City of Long Beach to represent the Port of Long Beach in regard to appropriations for the Los Angeles-Long Beach Harbors Study, the Los Angeles and Long Beach Harbors Model Study programs, and for remedial maintenance dredging in the mouth of the Los Angeles River.

The Los Angeles-Long Beach Harbors Review Report for future channels and landfill development, which has been in process since 1964 by the U. S. Army Corps of Engineers, is scheduled for completion in fiscal year 1985. This report demonstrates the need for the development of 2,600 acres of new landfill and related navigation channels if the harbors are to keep up with the economic needs of the nation. With the completion of this preliminary report, this study will then be ready to move into the next phase, which is the development of a continuing planning and engineering report, including physical and numerical model testing and a computerized ship navigation safety study. It is therefore urged that the Committee approve an appropriation of $1,000,000 to continue this study.

The Water Resources Development Act of 1976, Section 123, authorized the Chief of Engineers to operate and maintain the Los Angeles-Long Beach Harbor Hydraulic Model at the U.S. Army Waterways Experiment Station in Vicksburg, Mississippi, as part of the Los Angeles and Long Beach Harbors Model Study. In the President's budget for fiscal year 1985, $130,000 has been included to maintain that model. However, as a portion of the Los Angeles and Long Beach Harbors Model Study, the Corps of Engineers has initiated a study of tidal circulation, wave energy, and ship motion in the San Pedro Bay area. The Port of Long Beach long-term plans for deeper channels (to 82 feet) and companion landfills to accommodate large bulk carriers for much needed international trade, including coal exports, is contingent on obtaining such hydraulic data and subsequent model testing in a timely manner. The President's budget for fiscal year 1985 does not include O & M funding needed to acquire, place, and maintain instrumentation for this program by the Vicksburg Experiment Station. It is currently estimated that an appropriation of $1,200,000 would fund this much-needed continued information gathering program for fiscal year 1985. Congress is therefore respectfully requested to appropriate this $1,200,000, plus the $130,000 for model maintenance, for a total appropriation of $1,330,000 for fiscal year 1985. It is our understanding that the Corps of Engineers is capable of continuing this program if funded.

The modernization and expansion program by the Port of Long Beach is estimated to be in excess of $200,000,000 of local funds for the decade of the 1980's and a similar or greater growth in the 1990's. The Port has essentially utilized all existing available land areas. The Port has a tanker terminal with a water depth of 76 feet which is capable of berthing 285,000 DWT ships. But existing depth of the channel serving this berth is only 60 feet. The deepening of this channel and subsequent programs can be carried out only if additional landfills and berths can be provided. Design of these programs is dependent on data obtainable from hydraulic monitoring of San Pedro Bay and hydraulic model testing, together with the results of the Los Angeles-Long Beach Harbors Study.

The Port of Long Beach also concurs with and supports the recommendation of the California Marine Affairs and Navigation Conference and the Long Beach City Council on the proposed budget amount of $600,000 for remedial maintenance dredging to remove accumulated flood-deposited silt in the mouth of the Los Angeles River. These silt deposits create serious restrictions and hazards to commercial and recreational boating activity in and adjacent to the Long Beach Harbor District. In addition, the Port recommends that these silt deposits be removed, preferably on an annual basis, and at least on a biennial basis as a scheduled item of work. The dredged material should be used for replenishment of the sand on the beaches in Long Beach, down coast from the Los Angeles River. The replenishment is necessary because of the interruption of the normal littoral processes by the flood control channel and the influence of the federal breakwater on normal wave action, which create a reduction in sand movement and serious beach erosion under certain storm conditions. It is estimated that the annual rate of siltation is approximately 200,000 to 300,000 cubic yards and is influenced by operational decisions at the Corps of Engineers' Hansen Dam located at the headwaters of the river. It is imperative, in our opinion, that a more assured long-range remedy be found for the Los Angeles River mouth if navigational utility is to be maintained. The City believes that an explicit annual maintenance dredging and beach replenishment project would provide such a long-range solution to the siltation problem from the Los Angeles River.

Attached hereto is Resolution No. HD 1280, adopted by the Board of Harbor Commissioners of the City of Long Beach on March 19, 1984 which contains data relating to the background of the Los Angeles-Long Beach Harbors Study, hydraulic modeling, and other related matters, and which stresses the need for federal assistance in developing economic, technical, and environmental background information essential to the design and permitting of Port facilities vital to regional and national interests.

Also attached is Resolution No. C-23694, adopted by the City Council of the City of Long Beach on February 21, 1984, which contains data relating to the background of the dredging of the mouth of the Los Angeles River and which stresses the need for this project to be instituted as an annual maintenance program.

Agencies benefiting from these projects in San Pedro Bay include, but are not limited to, the City of Long Beach, the Ports of Long Beach and Los Angeles, Los Angeles County, the State of California, and the United States Navy and Coast Guard, plus various state and federal environmental agencies.

Thank you for permitting me the privilege of this presentation.

RESOLUTION NO. HD-1280

A RESOLUTION OF THE BOARD OF HARBOR COMMISSIONERS OF THE CITY OF LONG BEACH, CALIFORNIA, REQUESTING THE CONGRESS OF THE UNITED STATES TO APPROPRIATE FUNDS TO CONTINUE THE LOS ANGELES-LONG BEACH HARBORS STUDY, TO CONTINUE THE LOS ANGELES AND LONG BEACH HARBORS MODEL STUDY PROGRAMS, BOTH RELATING TO IMPROVEMENTS IN SAN PEDRO BAY, AND FOR REMEDIAL MAINTENANCE DREDGING IN THE MOUTH OF THE LOS ANGELES RIVER, ALL BY THE UNITED STATES ARMY, CORPS OF ENGINEERS, AND MAKING A DETERMINATION RELATING THERETO.

WHEREAS, the Ports of Long Beach and Los Angeles in San Pedro Bay, California, are two of a limited number of sites on the West Coast of the United States which possess the potential for deep water ports as recommended in the West Coast Deep Water Port Facility Study conducted by the United State Army, Corps of Engineers; and

WHEREAS, the Ports of Long Beach and Los Angeles have a record of both physical and fiscal growth to the extent that together the two are presently handling over 87 million metric tons of cargo annually (on a fiscal year basis), which cargo is valued at over 38 billion dollars, which growth and activity are significant economic, regional and national factors, and from which over 1.1 billion dollars in federal revenues are derived annually through United States Customs duties on foreign imports; and

WHEREAS, both Ports are now, and are increasingly becoming, hard-pressed to provide facilities to meet the needs of the shipping industry, and to that end are conducting extensive studies, in conjunction with federal studies, to determine navigational, transportation, and environmental requirements necessary to provide economic and adequate surge-free berthing and cargo-handling facilities; and

WHEREAS, all existing land in the Port of Long Beach which can be developed for shipping operations has been utilized and to meet the needs of the following decade, the design, permitting and construction of new lands must commence immediately; and

WHEREAS, continuation of the studies currently underway by the Corps of Engineers, consisting of the Los Angeles-Long Beach Harbors Study originally requested by the Committees on Public Works of both the House and the Senate, and the Los Angeles and Long Beach Harbors Model Study programs, including maintenance and operation of the San Pedro Bay Hydraulic Model at Vicksburg, Mississippi, as authorized by Section 123 of the Water Resources

Development Act of 1976, are both urgently needed for use in the design and permitting processes for future landfills for Port Development; and

WHEREAS, it is necessary, as part of the Los Angeles and Long Beach Harbors Model Study, to obtain long-term data on the hydraulic regime in San Pedro Bay, which activity consists of a monitoring program using self-contained recording instruments to determine currents and energy entering the Bay in order to augment earlier monitoring and to verify specific needs for hydraulic model testing to assure tidal flushing and surge-free berthing; and

WHEREAS, the Los Angeles River is the largest of numerous flood-control channels constructed and maintained jointly by the Los Angeles County Flood Control District and the United States Army, Corps of Engineers, and silt deposit from heavy storm runoff in recent years accumulating in the mouth of the Los Angeles River between the City and the Port of Long Beach constitutes a restriction and hazard to both commercial and recreational boating; and

WHEREAS, the Board of Harbor Commissioners of the City of Long Beach, as a properly constituted and financially responsible local agency, by its Resolution No. HD-890, adopted August 3, 1965, expressed its intent to enter into such agreements as may be reasonably required to further federal projects for the development and improvement of Long Beach and Los Angeles Harbors; and

WHEREAS, the Director of Port Planning of the City of Long Beach Harbor Department has determined, in a review of the applicability of the California Environmental Quality Act (CEQA) to this Resolution, that under the provisions of Sections 15301 and 15378 of the State Guidelines implementing CEQA, this Resolution is not subject to the requirements of CEQA;

NOW, THEREFORE, the Board of Harbor Commissioners of the City of Long Beach resolves as follows:

1. The Board of Harbor Commissioners hereby finds and determines that this Resolution is not subject to the provisions of the California Environmental Quality Act.

2. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army, Corps of Engineers, to continue the Los Angeles-Long Beach Harbors Study.

3. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army, Corps of Engineers, to maintain the San Pedro Bay Hydraulic Model at the Waterways Experiment Station at Vicksburg, Mississippi, as part of the Los Angeles and Long Beach Harbors Model Study.

4. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army, Corps of Engineers, to continue the hydraulic monitoring program of San Pedro Bay to obtain prototype data essential to long-range planning and design, also as part of the Los Angeles and Long Beach Harbors Model Study.

5. That the Congress of the United States be, and is hereby, respectfully requested to appropriate simultaneously the funds necessary for the Chief of Engineers, United States Army, Corps of Engineers, in conjunction with the Los Angeles County Flood Control District, to engage in the necessary maintenance dredging at the mouth of the Los Angeles River to remove silt deposits which have accumulated at that location.

6. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, directed to send copies of this Resolution to the United States Senators and to Members of the House of Representatives from California, with a letter

requesting their assistance in presenting this Resolution before the proper Congressional committees.

7. That the Executive Director of the Long Beach Harbor Department be, and he is hereby, further directed to send copies of this Resolution to the President of the United States; the Director, Office of Management and Budget; the Secretary of the Army; the Chief of Engineers, the Board of Engineers for Rivers and Harbors, the Division Engineer-San Francisco, the District Engineer-Los Angeles, all of the United States Army, Corps of Engineers; and to such other interested persons as he may deem appropriate.

The Secretary of the Board shall certify to the passage of this Resolution by the Board of Harbor Commissioners of the City of Long Beach, shall cause the same to be posted in three (3) conspicuous places in the City of Long Beach, and shall cause a certified copy of this Resolution to be filed forthwith with the City Clerk of the City of Long Beach and it shall thereupon take effect.

I hereby certify that the foregoing Resolution was adopted by the Board of Harbor Commissioners of the City of Long Beach at its meeting of March 19, 1984, by the following vote:

Ayes: Commissioners Hauser, Wilson, DuVall, Gray, Langslet
Noes: Commissioners None
Absent: Commissioners None
Not Voting: Commissioners None

M. Du Vall
Secretary

RESOLUTION NO. C- 23694

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LONG BEACH URGING THE CONGRESS OF THE UNITED STATES TO AUTHORIZE AND FUND THE ANNUAL DREDGING OF THE MOUTH OF THE LOS ANGELES RIVER

WHEREAS, the mouth of the Los Angeles River, which is the largest of numerous flood control channels in Los Angeles County, is located within the city limits of the City of Long Beach; and

WHEREAS, due to heavy rainfall runoff, great quantities of silt and sediment are deposited at the mouth of the Los Angeles River and in the channel seaward thereof in Queensway Bay; and

WHEREAS, the annual rate of such siltation is approximately 200,000 to 300,000 cubic yards, and is influenced by operational decisions at the Corps of Engineers Hansen Dam situated at the headwaters of the Los Angeles River; and

WHEREAS, the City-owned Catalina Landing Facility, which is leased to a private company for the operation of daily scheduled passenger service to and from Catalina Island, and the City owned and operated Golden Shore Small Boat Launching Facility for the launching of small boats are both located at the mouth of the Los Angeles River; and

WHEREAS, said silt deposits create substantial hazards and cause serious problems and significantly restrict, limit and hinder the use of the navigable waters at the mouth of the

Los Angeles River for commercial and recreational boating activities especially for commercial transportation between Long Beach and Catalina Island; and

WHEREAS, the shoaling about the piers of the Queensway Bridge created by the silt deposits may affect the structural integrity of said bridge; and

WHEREAS, the maintenance dredging of the mouth of the Los Angeles River and the basins and channel seaward thereof in Queensway Bay is necessary so that said navigable water areas and the adjacent facilities may continue to be used safely and without danger of loss of life and property; and

WHEREAS, the maintenance dredging of the mouth of the Los Angeles River to insure continuation of safe navigation is within the jurisdiction of the United States Army, Corps of Engineers; and

WHEREAS, the accumulated silt deposits in the mouth of said river should be removed on an annual or at least a biennual basis as a scheduled item of work for the Corps of Engineers; and

WHEREAS, due to funding limitations, such maintenance dredging has only been performed on an occasional basis by the Federal Government and navigational dredging responsibilities have thus been unnecessarily shifted to local government;

NOW, THEREFORE, the City Council of the City of Long Beach resolves as follows:

Section 1. That the Congress of the United States is urged to appropriate the funds necessary for the United States Army, Corps of Engineers, to perform the appropriate maintenance dredging at the mouth of the Los Angeles River and the basins and channel seaward thereof in Queensway Bay to remove deposits of silt and sediment which have accumulated at that location.

Sec. 2. That the Congress of the United States is requested to authorize and fund an annual maintenance dredging project for the mouth of the Los Angeles River by the Department of Army, Corps of Engineers, in order to provide a long range solution to this continuing situation and maintain navigational utility.

Sec. 3. The City Clerk is directed to send certified copies of this resolution to the United States Senators and the Members of the House of Representatives representing the Long Beach area; the Secretary of the Army; the Chief of Engineers of the Department of the Army; and to such other interested persons as may be deemed appropriate.

Sec. 4. The City Clerk shall certify to the passage of this resolution by the City Council of the City of Long Beach and it shall thereupon take effect.

I hereby certify that the foregoing resolution was adopted by the City Council of the City of Long Beach at its meeting of February 21, 1984, by the following vote:

Ayes: Councilmembers: Wilder, Hall, Wilson, Sato, Harwood,
Clark.

Noes: Councilmembers: None.

Absent: Councilmembers: Edgerton, Kell, Tuttle.

Shelba Powell
City Clerk

STATEMENT OF THE VENTURA (CALIF.) PORT DISTRICT

Ventura Harbor is located along the Southern California coastline in the City of San Buenaventura, some 30 miles downcoast from Santa Barbara, and approximately 60 miles northwest of the City of Los Angeles. Ventura Harbor became operational in 1963, and it soon became evident that the Harbor was plagued with a serious entrance problem. In May, 1968, the Ventura Harbor became a Federally approved project committing the U. S. Army Corps of Engineers to provide maintenance dredging and a solution to the entrance problem. A detached breakwater and sand trap area which was completed by the Corps of Engineers in 1972 has provided significant improvement to the Harbor entrance. The need for annual maintenance dredging continued however, and the Corps of Engineers and the Ventura Port District have conducted maintenance dredging of the Harbor entrance within the limits of their jurisdiction from 1968 through the present time.

In recent years an aggressive development program has resulted in many new facilities, and others that are either under construction or are scheduled for start in the very near future. These include an extensive commercial facility, primarily oriented to the commercial fishing industry and the servicing of the offshore oil industry. The total investment for these improvements is approximately $30 million, with $1,300,000 being funded by the Economic Development Agency. In addition, the headquarters for the Channel Islands National Park has been completed, and large numbers of public are enjoying the displays and program of the National Park Service. A new 225 room resort hotel complex is underway with an anticipated expenditure of $27 million.

All of the operations of the Harbor, particularly those related to commercial fishing and the support boats for the oil industry, are highly dependent upon a navigationally adequate entrance to the Harbor. It is therefore respectfully requested that the Congress support the Army Corps of Engineers FY85 Civil Works Budget request of $2,500,000 for the maintenance dredging of the Ventura Harbor entrance channel. The area of Corps of Engineers responsibility is illustrated in Photo No. 1.

The U.S. Army Corps of Engineers was authorized by the Senate Public Works Committee to perform a review study of the navigational problems of the entrance to Ventura Harbor. Said study is urgently needed in order to determine the design modifications to the Federal improvements at Ventura Harbor which will alleviate the periodic shoaling that plagues the entrance channel. The shoaling and the dangerous wave action associated therewith combine during the winter months to create unsafe navigational conditions that threaten the viability of the large commercial fishing fleet utilizing the harbor's facilities, and that disrupt the operations of the large oil crew boats transporting personnel to the offshore oil platforms in the Santa Barbara Channel.

It is respectfully requested that the authorized review study be funded in the amount of $250,000. It is felt that the results of this study will not only lead to an improvement of the navigational problems at the Ventura Harbor, but in all probability will reduce the future cost of maintenance dredging.

STATEMENT OF VICTOR ADORIAN, DIRECTOR, COUNTY OF LOS ANGELES DEPARTMENT OF BEACHES AND HARBORS

The Board of Supervisors of the County of Los Angeles respectfully and with a sense of great urgency, requests the serious consideration of the Congress of the United States for several projects urgently required to preserve and restore a vital and precious asset, the 75 mile County shoreline.

During the 1983 winter storms, 14 of the 15 coastal counties in California, one of which was Los Angeles County, were declared disaster areas by the President of the United States. In the following year, Los Angeles County has worked diligently at a cost of over $4 million to restore our beaches to their pre-storm condition.

Last year's ordeal taught us a great deal. Not only do we depend on the coastal areas for rest and relaxation, they also act as a natural buffer to protect property from the high energy forces of the ocean. The heavy damage incurred to federal, state, county, city and private property, as well as recreational facilities along our coastline have shown us the extreme necessity for the funding and rapid completion of the studies requested below.

For several years we have also requested without success funding for continuation of a federal survey of the north coast of Los Angeles County to determine feasible sites for construction of small craft facilities. During the last year the prospect of early development immediately adjacent to and impacting upon the federal channel in the Marina del Rey Small Craft Harbor has increased greatly and the continuation of this study must also take a high position on our list of priorities.

California Storm and Tidal Wave Study (Approximate Cost: $1,500,000)

This study is previously authorized and the President's budget provides $700,000 to study the geographic shoreline area from Dana Point in Orange County south to the Mexican border. The study is of accelerating importance to document shoreline changes, identify and quantify the cause of those changes, and provide technical information for sound decisions on restoring and maintaining the shoreline.

Most importantly, it is essential to allocate an additional $750,000 to extend this study north to incorporate the Los Angeles County coastline.

Sequit Point to Flat Rock - Erosion Control Study (Approximate cost: $450,000)

We request funding authorization for this erosion control study and expansion to include White Point and Cabrillo Beaches in the vicinity of the Port of Los Angeles. Over $3 million has been spent in the last year at the Federal and County level to repair damage at White Point and Cabrillo alone. This study will focus upon localized erosion problems and recommends specific solutions including hard structures, such as groins and revetments, and soft structures, such as sand placement to support or protect the former.

North Coast of Los Angeles County Navigational Survey and Study (Approximate cost: $250,000)

In recognition of the growing demand for small craft facilities, and of the great financial success of the joint Federal/County Marina del Rey Small Craft Harbor Project, the Congress authorized the $470,000 survey in F.Y. 1968, together with an initial federal appropriation of $5,000 in the Corps of Engineer's budget, pursuant to the provisions of Public Law 14, 79th Congress, approved March 2, 1945. Since 1968 federal appropriations have totaled $165,000, which amount was expended by the Corps to survey a number of locations between Malibu and Marina del Rey.

Some $4.6 million was expended by the federal government since the Marina del Rey Project was authorized in 1954. This expenditure has been matched by $19 million in State and County funds and a $175 million investment by private industry to provide the great variety of public facilities available in the project area; and a very substantial financial return to both governmental agencies and the private sector.

There is a site adjacent to Marina del Rey which may provide the last potential opportunity for additional boating facilities on the County coast. Because property development plans for this area are nearing completion we urgently need an $85,000 navigation study that will provide badly needed boat slips and public recreational facilities, additional private business opportunities, 600 jobs, and substantial tax revenues to federal and local governments.

The City of Santa Monica has requested that an additional $165,000 be provided in the study to determine the feasibility of reestablishing their breakwater to provide boat refuge and protected moorings for small craft in Santa Monica Bay. The breakwater, already in a state of deterioration, suffered very substantial additional damage in the recent storms.

Marina del Rey Channel Dredging (Approximate Cost: $1,200,000)

This funding is needed to provide for safe navigation in the Marina del Rey channel. Sand deposits or shoaling have reduced the width of boating lanes used for entering and exiting the Marina del Rey channel. North of the jetty sand deposits cause waves to break further to sea. If this pattern continues, the north entry to the entrance channel will be blocked by breaking waters.

All legislative bodies must contend with growing demands, shrinking resources, and the difficult allocation of those resources. I trust your Committee will recognize the high priority associated with those projects, particularly by the eight million citizens of Los Angeles County and the countless visitors which contribute to our economy.

STATEMENT OF CALIFORNIA STATE SENATOR GARY K. HART

I am writing to urge your consideration of an increase in the President's Fiscal Year 1985 Budget for the California Storm and Tidal Wave Study, from the current figure of $700,000 to $1.5 million, and an appropriation of funds for dredging the Santa Barbara and Channel Islands harbors.

The proposed allocation of $700,000 is a decrease from the 1984 allocation, and the consequences of the reduction can only jeopardize the studies in progress and prohibit a timely completion of these much-needed analyses. The 1984 allocation allowed the Corps of Engineers to initiate studies in Santa Barbara and Ventura counties, where continuous beach erosion in one area and excessive sand accumulation in another area threaten recreation and navigation activities, and environmental and residential safety.

An appropriation of $1.5 million will not only allow the Corps of Engineers to expand its study area, but will enable it to expedite the completion of the studies in progress. The Corps has estimated that it will take five years at the 1984 allocation level to complete the study in this area. Implementation of solutions to the problems that exist along our coastline cannot proceed without an understanding of what is causing these catastrophic changes. Time can only exacerbate the problem and increase the cost of the study.

Santa Barbara and Ventura counties, the cities of Santa Barbara, Carpinteria, Ventura, Oxnard and Port Hueneme, the California Coastal Commission and representatives from Congressman Robert Lagomarsino, Congresswoman Bobbi Fiedler, Assemblyman Jack O'Connell and my office have been meeting regularly in an attempt to coordinate efforts to resolve this ongoing problem. I think this willingness to collectively coordinate a program to address the issue of beach erosion is an indication of a broad-based commitment to solving this issue.

In addition, it has come to my attention that the President's Fiscal Year 1985 Budget does not allocate any funds for dredging the Santa Barbara and Channel Islands harbors. It is imperative that funds be set aside to clear these harbors of sand. Coast Guard operations, as well as commercial and sport fishing enterprises can be severely restricted if these harbors are not accessible.

I strongly encourage you to approve the increase to $1.5 million for the California Storm and Tidal Wave Study, and the funds necessary to continue dredging operations.

STATEMENT OF CALIFORNIA STATE ASSEMBLYMAN JACK O'CONNELL

I am writing to urge your Committee to recommend a full $1.5 million appropriation for the Storm and Tidal Wave Study of the coast of California being prepared by the Army Corps of Engineers.

As you may know the President's budget for the 1984-85 fiscal year contains only $700,000 for this project. Without the full $1.5 million, also recommended by the California Marine Affairs and Navigation Conference (CMANC), progress on Santa Barbara and Ventura Counties will be drastically reduced. The data being collected for this report will be crucial to developing planning policies and actions to deal with erosion, both natural and unnatural. Without this data, our local jurisdictions may be forced into making decisions without adequate information, especially if hit with another hard winter in the next few years.

It is important to note that a great deal of co-operative effort is being made in Santa Barbara and Ventura Counties to better understand the natural erosion process. There is a recognition that its impacts are regional in nature and must be regarded as such.

I am also requesting your support for funding for dredging operations in the Santa Barbara, Ventura and Channel Islands Harbor's. Without these funds for dredging, all of these harbors could face catastrophe.

Thank you for your consideration in this matter.

SUBCOMMITTEE RECESS

Senator WILSON. There is a vote in process and I must go; in fact, it has been in process now for about 5 minutes so I dare not wait much longer.

At this point, let me declare a 20-minute recess. It is now 5 minutes before the hour. Hopefully, at a quarter past we can resume. I apologize, but these are circumstances beyond my control.

We will stand in recess until a quarter past the hour.

[Whereupon, a short recess was taken.]

CALIFORNIA WATER RESOURCE AND RECLAMATION PROJECTS

STATEMENT OF ROY DODSON, CHAIRMAN, CALIFORNIA WATER COMMISSION

ACCOMPANIED BY DAN HUEY, VICE CHAIRMAN

Senator MATTINGLY [presiding]. The subcommittee will come to order.

Mr. Dodson, you may proceed.

Mr. DODSON. Thank you, Mr. Chairman.

Senator MATTINGLY. I understand you have been waiting for a Senator to show up.

Mr. DODSON. We were going to settle for Steve Crow, Senator, but we know that would be irregular. [Laughter.]

Mr. DODSON. Mr. Chairman, I am Roy Dodson, chairman of the California Water Commission. With me is Vice Chairman Dan Huey who should be close some place in the auditorium.

I appreciate very much the opportunity to appear before you with the official recommendation for the State of California for the fiscal year 1985 appropriation. Our recommendations are in the detailed statement which I submitted to the committee with the request that it be made a part of the record.

Approximately 75 Californians have come to Washington to appear before you and to meet with their elected representatives. I will now introduce the 30 or so people who will speak on behalf of specific projects. I have reminded them that time is very short and we should keep it brief.

[The statement follows:]

STATEMENT OF R.E. DODSON, CHAIRPERSON, CALIFORNIA WATER COMMISSION

Mr. Chairman and members of the Committee: I am Roy Dodson, Chairperson of the California Water Commission, an official agency of the State of California. The Commission is composed of nine representative citizens from throughout the state who are charged by statute with representing State and local interests before this Committee.

I appreciate the opportunity to appear before you with the official recommendations of the State of California for fiscal year 1984-85 appropriations. As in the past, I will introduce the various supporting representatives who will speak on behalf of specific projects.

Corps of Engineers - The President's budget will assure the timely completion of the Cucamonga Creek and Dry Creek (Warm Springs Lake) projects. Construction of several other projects will continue at a prudent rate including, Pajaro River-Uvas Carnadero, Fairfield Vicinity Streams, LACDA Rehabilitation, Lytle and Warm Creeks, Merced County Streams, Sweetwater River, Walnut Creek and the San Francisco Bay to Stockton Ship Channel projects.

The President's budget provides reasonable funding for flood control investigations by the Corps for the Antelope Valley Streams, Calleguas Creek, Dry Creek (in Placer and Sacramento Counties), Mojave River Dam, San Francisco Bay Shoreline -San Mateo and Northern Alameda Interim, San Joaquin River Basin - Comprehensive, San Luis Obispo County Streams, Santa Barbara County Streams, Morrison Creek, Redbank and Fancher Creeks, and Goleta and Vicinity.

We support the funding in the President's budget for these programs and request favorable consideration by the Congress.

Corps of Engineers - Recommendations for Additional Funding - The California Water Commission is recommending funding for several projects not included in the President's budget. These are:

CWC NO.	PROJECT	COMMISSION RECOMMENDATIONS
3A.	Caliente Creek	$250,000
4.	Guadalupe River	$145,000
9.	Sacramento Valley Navigation	$ 50,000
10B.	San Francisco Bay Shoreline North Bay and Suisun Marsh Interim	$100,000
11A	San Joaquin River Basin Cosumnes River Interim	$200,000
14A.	Santa Ana River and Orange County Interim No. II	$400,000
16.	Walnut Creek Basin	$200,000
20.	Sacramento River Deep Water Channel	$1,000,000
27D.	Lower San Joaquin River and Tributaries	$2,000,000

The $250,000 appropriation for Caliente Creek will allow the Corps to proceed with the investigation as soon as the Corps completes the reconnaisance report in F. Y. 1985.

Flooding in 1982 and 1983 adjacent to Coyote Creek reemphasized the need for flood control facilities in highly urbanized Santa Clara County. Funding for the Guadalupe River investigation will complete analyses along Coyote Creek and complete the overall study in F.Y. 1985.

The request for the Sacramento Valley Navigation funding would allow the Corps of Engineers to establish the necessary coordination with interested parties.

The requested funding for the North Bay and Suisun Marsh Interim investigation would allow the Corps of Engineers to initiate a study of levees to protect the Suisun Marsh, an area with significantly important wildlife habitat.

The recommended appropriation for the Cosumnes River Interim study would allow the Corps to proceed with the investigation following the completion of the Corps' reconnaissance report in early F.Y. 85.

The $400,000 recommended for the Santa Ana River and Orange County Survey Interim No. II would advance the completion date to September 1986.

Contra Costa County is formulating plans for flood control projects in the Walnut Creek Basin. We support appropriations for the Corps of Engineers to review the proposed projects to determine the federal interest.

The recommended appropriation for the Sacramento River Deep Water Ship Channel will allow completion of planning and engineering in September, 1985. Coordination will continue with state and federal agencies to determine impacts on water project operations and the need for mitigation.

In F. Y. 1984 Congress appropriated funds for selective channel clearing and removal of debris to restore the channel capacity of the Lower San Joaquin River. The funding requested will allow this program to proceed in F. Y. 1985.

We believe these projects are important to the economic well being of California.

In addition, the Commission recommends increased funding above the President's budget for several Corps of Engineers projects. These are:

CWC NO.	PROJECT	PRESIDENT'S BUDGET	COMMISSION RECOMMENDATION
6.	Los Angeles County Drainage Area (LACDA)	$ 450,000	$ 850,000
10A.	San Francisco Bay Shoreline - Santa Clara and Southern Alameda	120,000	305,000
14B.	Santa Ana River & Orange Co. Interim No. III	300,000	550,000
18.	Cache Creek	450,000	1,000,000
21.	Santa Ana River Main Stem	2,500,000	3,500,000
27.	New Melones Lake 1/	4,500,000	7,500,000
31.	Sacramento River Bank Protection	2,500,000	4,000,000
32.	Sacramento River Chico Landing to Red Bluff	2,000,000	4,000,000
34.	San Luis Rey River	5,000,000	13,900,000
38.	Wildcat and San Pablo Creeks	500,000	1,000,000

1/ Tentative - Final Recommendation will be adopted on April 13, 1984.

A number of critical problem areas have been identified throughout the LACDA study area. Since these areas are all interrelated and interconnected. Any modification at one site could impact another area. The additional recommended funding will allow the Corps of Engineers to proceed at a more timely and prudent schedule with its investigation of this highly urbanized area and to complete the study by September, 1986.

The flooding in 1982 pointed out the need to solve potential flood hazards along the San Francisco Bay Shoreline in Santa Clara and Alameda County. The $305,000 will allow the Corps of Engineers to complete the interim study in F.Y. 1985.

The $550,000 recommended for Santa Ana and Orange County Interim III would allow the Corps of Engineers to proceed satisfactorly toward resolving a major flood problem in the Huntington Beach area.

The Corps has expanded the Cache Creek investigation to properly address the erosion problem in Capay Valley. The additional funding will allow the Corps to complete the investigation in September, 1986.

The additional funding for the Santa Ana River Main Stem project would allow the Corps to proceed with its design work at a pace that would allow construction to begin in F. Y. 1988-89.

Additional funding for the Sacramento River Bank Protection project and the Sacramento River, Chico Landing to Red Bluff project will allow construction of additional units of each project. In past years this work has not kept pace with the need.

The construction planning for San Luis Rey River has been completed and the project is ready for construction. The recommended funding will allow completion of the single levee project before the winter storms.

The recommended funding will allow initiation of construction of the Wildcat and San Pablo Creeks flood control project. This project is needed for the social and economic welfare of the area.

The Commission supported the President's budget of $4,500,000 with the provision that the Commission will consider augmenting this budget request by $3,000,000 at the April 13, 1984, meeting of the Commission. The Commission has asked the Counties of Calaveras, Tuolumne, Stanislaus, and San Joaquin to clarify the commitments made by the Federal Government for the recreation facilities at New Melones Lake and the downstream reaches of the Stanislaus River.

Bureau of Reclamation - The President's budget continues at prudent levels for certain programs of the Bureau of Reclamation, including the Sacramento River Division and San Felipe Division of the Central Valley Project, the Colorado River Salinity Control Project, the Colorado River Water Quality Improvement Feasibility Investigations, the Grass Valley Debris Dam - Buckhorn Mountain Project, Delta Support Studies, Kellogg Unit reformulation, New Melones Studies, San Joaquin Valley Conveyance Study, Central Valley Fish and Wildlife Management Study, All American Canal Replacement and Imperial Irrigation District Canal Lining and System Improvement. We support these appropriations along with the appropriation for initiating design and construction of the Santa Margarita Project.

The P.L. 984 and P.L. 130 loan programs are important to California as it allows the work to be conducted at the local level. We support the President's budget funding the loan applications for San Benito County Flood Control and Water Conservation District, Colusa County Water District, Glide Water District, Oakdale Irrigation District, Ramona Municipal Water District, and Fallbrook Public Utility District.

Bureau of Reclamation - Recommendation for Additional Funding - We are recommending $5,250,000 for the Auburn Folsom South Project. The $5,250,000 will provide funds for the Bureau of Reclamation to begin final design on the existing authorized Auburn Dam and the remaining reaches of the Folsom South Canal. The funding is supported by many agencies including the California Senate Select Committee on Auburn Dam chaired by Senator Ray Johnson and the Assembly Select Committee on Auburn Dam chaired by Assemblyman Norman Waters. We are supporting $4,700,000 for the San Luis Unit of the Central Valley Project. The additional funding would be used by the Bureau of Reclamation for design data collection for the remaining water distribution systems in Westlands Water District.

Several Bureau of Reclamation programs are not included in the President's budget. Because these projects are important to California, the Commission supports funding for the P.L. 984 loan request of the United Water Conservation District and for the Trinity River Fish and Wildlife Implementation and Management program. We have given preliminary aproval for funding of the P.L. 984 loan application of the Santa Ana Watershed Project Authority and will adopt a final recommendation on April 13.

We support the request of the United Water Conservation District for an appropriation of $2,500,000 for the District's P.L. 984 loan application. The appropriation would allow the District to proceed with the design and specifications of the project and the construction of a 70 acre desilting basin. The project will prevent further salt water intrusion of the ground water aquifers in Ventura County.

The Federal-State Trinity River Task Force has completed a Trinity River Basin Fish and Wildlife Management Program which has been approved by all member agencies. HR 1438 (Eugene Chappie, Douglas Bosco and Norman Shumway) and S 1874 (Cranston) would authorize this management program. We reaffirm our support for the authorization and appropriations for the program.

The Santa Ana Watershed Project Authority is a new loan application. The proposed loan would finance the imported water conveyance system pipeline and reservoir. The project service area would be in Riverside County. The local agency is requesting an appropriation of $5 million to initiate construction in F. Y. 1984-85. We gave preliminary approval to this loan at our March 2, 1984 meeting. On April 13, 1984 we will adopt our final recommendation.

I urge this Committee to favorably consider our recommendations for appropriations for California's energy, flood control, and water resources programs in fiscal year 1984-85.

I respectfully request my statement and the attached tabulation be made a part of the record.

Attachment

CALIFORNIA WATER COMMISSION
FEDERAL FLOOD CONTROL AND RECLAMATION PROGRAMS IN CALIFORNIA FOR FISCAL YEAR 1984-85
(In Thousands of Dollars)

CWC NO.	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
	CORPS OF ENGINEERS				
	GENERAL INVESTIGATIONS - Surveys				
2.	Antelope Valley Streams Los Angeles	985	645	140	140
3.	Calleguas Creek Ventura	1,775	1,235	320	320
3A.	Caliente Creek Kern	1,350	1,207	0	250
3B.	Dry Creek Placer and Sacramento	600	300	150	150
4.	Guadalupe River Santa Clara, Alameda	2,261	2,114	0	145
6.	Los Angeles County Drainage Area	3,700	2,366	450	850
7.	Mojave River Dam San Bernardino	590	230	360	360
9.	Sacramento Valley Navigation Yuba, Sutter			0	50

CWC NC	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
10.	San Francisco Bay Shoreline Several	3,555	1,725		
10A.	Santa Clara and Southern Alameda Interim	1,470	1,235	120	305
10B.	North Bay - Suisun Marsh Interim	905	100	0	100
10C.	San Mateo - Northern Alameda Interim	1,180	380	300	300
11.	San Joaquin River Basin	5,680	4,291		
11A.	Consumnes River Basin Interim Sacramento, San Joaquin	500	130	0	200
11B.	Littlejohn Creek Interim, San Joaquin	380	380	0	0
11D.	Comprehensive (Includes $100,000 for Tule River, $130,000 for Kaweah River and $215,000 for lower San Joaquin River.)	2,340	5,291	445	445
12.	San Leandro Bay Alameda	730	50	0	0
13.	San Luis Obispo County Streams	945	555	150	150
14.	Santa Ana River and Orange County Riverside, Orange, San Bernardino	9,340	6,695		
14A.	Interim No. II Zanja Creek, San Timoteo Creek, Wilson Creek, Rialto Creek and San Jacinto River	2,001		0	400

CWC NO	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
14B.	Interim No. III Orange County Tributaries Coyote Creek, Talbert, East Garden Grove, Wintersburg, Huntington Beach, and Greenville - Banning Channels	2,084		300	550
15.	Santa Barbara County Streams Santa Barbara	1,376	809	242	242
16.	Walnut Creek Basin Contra Costa	674	674	0	200
	GENERAL INVESTIGATION - Legislative Phase I				
17.	Morrison Creek Sacramento	3,000	2,500	500	500
	GENERAL INVESTIGATIONS - CONTINUATION OF PLANNING AND ENGINEERING				
18.	Cache Creek Lake and Yolo	2,000	320	450	1,000
19.	Redbank and Fancher Creeks Fresno	3,800	2,250	900	900
20.	Sacramento Deep Water Ship Channel	3,500	1,625	0	1,000
21.	Santa Ana River Main Stem , Several	20,300	5,725	2,500	3,500
	GENERAL INVESTIGATIONS - ADVANCED ENGINEERING AND DESIGN				
22.	Cottonwood Creek Shasta	772,000 (20,900)	(15,875)	(2,500)	(2,500)

CWC NO.	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
23.	Goleta and Vicinity Santa Barbara	46,600 (2,850)	(1,240)	(325)	(325)
	CONSTRUCTION - GENERAL				
24.	Pajaro River; Uvas Carnadero Santa Clara	2,390	450	1,300	1,300
24A.	Aquatic Plant Control	-	-	100	100
25.	Corte Madera Creek Marin	10,600	7,000	0	0
26.	Cucamonga Creek San Bernardino	93,900	92,447	1,453	1,453
27.	Dry Creek (Warm Springs Lake) Sonoma	338,000	279,335	14,000	14,000
27A.	Fairfield Vicinity Streams Solano	19,600	1,007	1,200	1,200
27B.	LACDA-Rehabilitation Los Angeles	44,700	5,000	10,000	10,000
27C.	Lytle and Warm Creeks San Bernardino	37,200	35,100	200	200
27D.	Lower San Joaquin River and Tributaries	5,000	750	0	2,000
28.	Merced County Streams Merced	72,200	9,316	4,000	4,000

Amounts in parentheses () are for preconstruction planning.

CWC NO	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
29.	New Melones Lake Calaveras & Tuolumne, Stanislaus	378,000	338,338	4,500	4,500
30.	Sacramento River - Major and Minor Tributaries Several	11,900	1,363	200	200
31.	Sacramento River Bank Protection Several	100,000	47,867	2,500	4,000
32.	Sacramento River, Chico Landing to Red Bluff	14,700	9,895	2,000	4,000
32A.	Sacramento River Flood Control Project	75,875	68,925	250	250
33.	San Francisco Bay to Stockton Ship Channel	203,000	26,683	18,400	18,400
34.	San Luis Rey River San Diego	29,200	2,794	5,000	13,900
35.	Santa Paula Creek Ventura	35,000	4,591	0	0
36.	Sweetwater River San Diego	17,400	3,625	4,000	4,000
37.	Walnut Creek Contra Costa	74,300	37,391	11,400	11,400
38.	Wildcat and San Pablo Creeks Contra Costa	19,400	1,430	500	1,000
	Total Corps of Engineers			91,155	110,785

CWC NO.	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
	RECLAMATION PROGRAMS				
42.	Sacramento River Division	343,066	290,000	11,553	11,553
47.	Auburn-Folsom South Unit	2,060,302	330,763	3,500	5,250
50.	San Luis Unit	1,319,534	642,931	3,338	4,700
	MISCELLANEOUS PROJECT FACILITIES				
59.	Grass Valley Debris Dam Buckhorn Mountain Project Trinity, Humboldt	8,000	0	500	500
59A.	Trinity River Sand Dredging Trinity, Humboldt ($200,000 budgeted in operations and maintenance budget.)	3,000	400	200	200
60.	Trinity River Fish and Wildlife Implementation and Management	35,000	0	0	1,300
61.	Delta Support Studies including Suisun Marsh Several (Includes $408 in operations and maintenance, $381 in construction.)	Continuing	8,472	789	789
62.	San Felipe Division Santa Clara, San Benito	336,459	199,408	74,763	74,763
	OTHER PROJECTS				
66.	Stampede Powerplant Nevada	6,700	4,450	2,071	2,071

CWC NO.	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
69.	Orland Project Safety of Dams Stony Gorge Dam Glenn	4,830	3,874	956	956
71.	Santa Margarita (Lower Colorado Region) San Diego	166,000	122	1,500	1,500
	LOAN PROGRAMS				
72A.	San Benito County Water Conservation and Flood Control District San Benito	19,717	16,704	3,012	3,012
72.	Yolo-Zamora Water District Yolo		0	0	0
73.	Colusa County Water District	12,316	2,500	5,196	5,196
74.	Glide Water Disctrict Glenn	5,900	2,094	3,781	3,781
75.	Oakdale Irr. District Stanislaus, San Joaquin	17,845	1,500	6,500	6,500
76.	Yuba County Water Agency Yuba	21,600	0	0	0
76A.	United Water Conservation District Ventura	18,700	0	0	2,500
77.	Ramona Municipal Water District San Diego	19,224	4,580	8,500	8,500

CWC NO.	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
78.	Fallbrook Public Utility District San Diego	12,445	3,220	6,405	6,405
78A.	Santa Ana Watershed Project Authority Several	14,917	0	0	
	FEASIBILITY INVESTIGATION				
79.	Kellogg Unit Reformulation Delta Division Contra Costa	800	557	283	283
80.	San Joaquin Valley Conveyance Study Several	600	0	357	357
81.	Shasta Dam Enlargement Shasta	3,070	2,100	0	0
	SPECIAL INVESTIGATIONS				
82.	Minor work in connection with completed projects Several	Continuing	36	25	25
83.	New Melones Studies	1,300	153	550	550
84.	Environmental and Interagency Coordination Activities Mid-Pacific Region Several	Continuing	9,016	750	750
85.	Central Valley Fish and Wildlife Management Study		1,800	444	444
86.	Technical Assistance to States	Continuing	473	175	175

CWC NO.	PROJECT & COUNTY	TOTAL FEDERAL COSTS	ESTIMATED COSTS THRU 9/30/84	PRESIDENT'S BUDGET 1984-85	CWC FINAL RECOMMENDATIONS 1984-85
	COLORADO RIVER SALINITY CONTROL PROJECT (Lower Colorado Region)				
88.	Paradox Valley Unit	85,000	15,800	12,985	12,985
89.	Grand Valley Unit	277,300	36,800	3,950	3,950
90.	Las Vegas Wash Unit	104,200	4,300	3,075	3,075
91.	Colorado River Water Quality Improvement Feasibility Investigations Multi-state	50,600	33,400	5,440	5,440
	OTHER PROGRAMS - LOWER COLORADO REGION				
92.	Lower Colorado Water Conservation and Efficient Use Program Several	2,700	2,185	180	180
	NEW INVESTIGATIONS - LOWER COLORADO REGION				
93.	Lower Colorado Water Supply Study	275	250	250	250
94.	All American Canal Replacement	460	135	409	409
95.	Imperial Irrigation District Canal Lining and System Improvement			150	150
	Total Bureau of Reclamation			$161,178	$168,499
	Total Corps of Engineers and Bureau of Reclamation			$252,333	$279,284

CENTRAL VALLEY FLOOD CONTROL PROJECTS

STATEMENT OF RAY BARSCH, GENERAL MANAGER, STATE RECLAMATION BOARD

ACCOMPANIED BY WALLACE McCORMICK, PRESIDENT, STATE RECLAMATION BOARD

Mr. DODSON. The first witness I would like to call is Ray Barsch, general manager of the State Reclamation Board.

Mr. BARSCH. Mr. Chairman, members of the committee, I am Ray Barsch, general manager of the State Reclamation Board.

I also appreciate the opportunity to appear before you with the recommendations that were adopted by the board on March 16, 1984.

I would like to introduce at this time Wally McCormick, president of the State Reclamation Board who is with me today.

The board's final recommendations are in the statement which I have previously submitted. The board has selected 18 projects which are directly related to flood control in the Central Valley which we strongly urge appropriations listed in the amount listed in that summary. Our local representatives will speak specifically on some of the important items.

Thank you.

[The statement follows:]

STATEMENT OF THE CALIFORNIA STATE RECLAMATION BOARD

Corps of Engineers' Projects	Page	Recommendations 1984-85
I. Surveys		
Northern California Streams	1	$ 150,000
San Joaquin River Basin	2	
-- Caliente Creek		250,000
-- Cosumnes River		200,000
-- Tule River		100,000
-- Kaweah River		130,000
-- Lower San Joaquin River		215,000
II. General Investigations		
Cottonwood Creek	3	5,000,000
Morrison Creek	3	500,000
Cache Creek	4	1,000,000
Red Bank and Fancher Creeks	5	900,000
Sacramento River Flood Control	6	250,000
III. Construction		
Merced County Streams	7	4,000,000
Sacramento River Major & Minor	8	200,000
Sacramento River Bank Protection	8	4,000,000
Sacramento River, Chico Landing to Red Bluff	9	4,000,000
Fairfield Streams Group	9	1,200,000
San Joaquin River (Channel Clearing)	10	2,000,000
U. S. Bureau of Reclamation Projects		
Auburn Dam	11	5,250,000

The Reclamation Board, as the State agency which furnishes required local assurances for Federal levee and channel projects in California's Central Valley, respectfully submits this statement in support of appropriations of Federal funds for accomplishment of flood control works.

The Reclamation Board recommends and strongly urges appropriation of funds in the amounts listed in the summary. While all projects are important to the health, safety, and well-being of Central

Valley residents, the surveys and projects described as follows are particularly critical:

I. Surveys

A. Northern California Streams:

This survey, authorized in 1958 and 1962, is a study of all the streams in Northern California that flow into the Pacific Ocean, including the Sacramento River and its tributaries, in regard to flood control measures. Throughout the years, there have been many widespread and destructive floods. When flooding occurs, heavy damages are inflicted on homes, agricultural lands, and public utilities. The cost of flood fighting, cleanup and repair, and restoration is usually several million dollars each time a flood occurs. The flood events of the past demonstrate the continuing need for flood management measures in the basin.

During fiscal year 1983-84, a study of Dry Creek in Sacramento and Placer Counties was initiated. The Board recommends $150,000 to continue this study in fiscal year 1984-85.

B. San Joaquin River Basin:

This survey, authorized in 1964 and initiated in 1968, encompasses the southern portion of the Central Valley, including part of the Delta-Central Sierra area and all of the San Joaquin and Tulare Lake Basins. The study will investigate the problems of flood control, irrigation, municipal water supply, power, recreation, fish and wildlife, and water quality. The study area is the site of many complex water supply and water transportation problems. Flooding is a major problem in the study area. During the severe floods of 1969 and 1983, the area experienced extensive damages. Projects to be considered include: dams and reservoirs, stream diversion, bank protection, and levee and channel improvement.

The Reclamation Board recommends funding for the following studies for fiscal year 1984-85:

Caliente Creek	$250,000
Cosumnes River	200,000
Tule River	100,000
Kaweah River	130,000
Lower San Joaquin River	215,000

II. General Investigations

A. Cottonwood Creek:

The project works, authorized in 1970, consist of two dams, with 2,000,000 acre-feet of multi-purpose storage. The 1979-80 and 1982-83 flood seasons again indicated the need for control on Cottonwood Creek, the largest uncontrolled tributary of the Sacramento River below Shasta Dam.

The State may contract with the Corps of Engineers to purchase water from the project. Issues involving acquisition of lands for wildlife mitigation, access to private lands for purpose of fish and wildlife studies, and acquisition of lands needed for replacement of fish-spawning gravels need to be resolved.

The Reclamation Board recommends appropriation of $5,000,000 in fiscal year 1984-85 for the Cottonwood Creek Project.

B. Morrison Creek - Phase I:

A study of Morrison Creek and its tributaries was authorized in 1963, and Phase I studies were authorized by the Corps of Engineers in 1976. These studies are scheduled for completion in November 1985. Work is being concentrated on assessment of alternative plans. The study area includes Morrison Creek, its principal tributaries which are Elder and Laguna Creeks and various smaller streams. Runoff from the stream group area drains into the Sacramento-San Joaquin Delta. The drainage area includes portions of Sacramento and adjoining suburbs, the communities of Elk Grove and Florin, and important military establishments.

State authorization requires assurances from the County of Sacramento, which have not been received. The County of Sacramento is in the process of establishing flood plain management along portions of the Morrison Creek Stream Group. In addition, the County has purchased some property within the project area for park purposes. The Reclamation Board recommends appropriation of $500,000 in fiscal year 1984-85 for the Morrison Creek - Phase I project.

C. Cache Creek Basin:

The Corps of Engineers has completed its feasibility report regarding water resources development in the Cache Creek Basin. The report recommends enlarging the outlet channel of Clear Lake and constructing a bypass channel to reduce flooding of development around the Lake, enlarging and raising of levees around the existing settling basin near the mouth of Cache Creek to increase the basin's sediment storage capacity, and establishing a National Wildlife Refuge in the existing Cache Creek Settling Basin at a total cost of $17,960,000.

This report states that a major flood problem exists along the rim of Clear Lake. Historical inflows to the Lake temporarily raise the lake level causing significant damage to lakefront development. Serious flood damages occurred in 1958, 1970 and 1983 causing estimated damages of $900,000, $500,000 and $1,500,000 respectively. This problem can be economically solved by increasing the discharge capability of the Lake's outlet channel.
Also, the storage capacity of the Cache Creek Settling Basin, which was constructed in 1937 to control sediment inflow to the Yolo Bypass of the Sacramento River Flood Control Project, is now nearly exhausted and sediment deposition from Cache Creek is again affecting the flood-carrying capacity of the Bypass and the maintenance of downstream navigation and flood control works. The

settling basin's storage capacity would be increased and a 3,600-acre National Wildlife Refuge would be established in the basin as a part of the National Migratory Bird Management Program.

Congress has not yet authorized this project; however, the Board recommends an appropriation of $1,000,000 in fiscal year 1984-85. This would accelerate the preconstruction planning stage when Congress authorizes the project.

D. Red Bank and Fancher Creeks:

The Corps of Engineers has completed its feasibility report regarding water resources development on Red Bank and Fancher Creeks, Fresno County. The report recommends single-purpose flood control improvements on Red Bank, Fancher, and Pup Creeks and Alluvial Drain; and dual-purpose flood control and recreation facilities on Big Dry Creek. The plan provides for enlargement of the existing Big Dry Creek Dam and Reservoir, a new dam on Fancher Creek, and detention basins on Red Bank and Pup Creeks and Alluvial Drain.

The report states that significant flood problems exist in the expanding Fresno-Clovis metropolitan area. Flooding occurs throughout the entire study area when channel capacities are exceeded. The most recent serious flooding in January and February 1969 caused an estimated $4.7 million in damages to agricultural lands, residences, and commercial and industrial properties.

The flood problem can be economically dealt with by construction of the proposed flood control features. Also, recreational features could be incorporated in the plan for enlarging Big Dry Creek Dam and Reservoir.

Congress has not yet authorized this project; however, the Board recommends an appropriation of $900,000 in fiscal year 1984-85 to enable the Corps of Engineers to proceed with design studies. This would accelerate the planning stage when Congress authorizes the project.

E. Sacramento River Flood Control Project:

This project was authorized in 1917 and modified by various Flood Control and/or River Harbor Acts in 1928, 1937 and 1941.

The project comprises a comprehensive system of levees, overflow weirs, drainage pumping plants, and flood bypass channels, extending along the Sacramento River from Collinsville near its mouth in Suisun Bay, upstream to Chico Landing, and along the lower reaches of principal tributaries; together with channel clearing, rectification, snagging and bank protection on the Sacramento River and tributaries.

Maintaining the stability of the project levees has been a continuing problem along Knights Landing Ridge Cut, the Colusa Basin Drain, and near the junction of Cache Slough and the Yolo Bypass. Slips in the Knights Landing Ridge Cut, Colusa Basin Drain and Cache Slough levees are recurring, and in the past PL 99 emergency levee repairs have been accomplished to restore the levee grade and section. The Knights Landing/Colusa Drain levees protect about 100,000 acres of highly productive agricultural land, with about 2,000 people living within the area.

The Reclamation Board recommends approval of an appropriation of $250,000 in fiscal year 1984-85 to initiate design deficiency studies on the Sacramento River Flood Control Project.

III. Construction

A. Merced County Streams:

This project, authorized in 1970, will provide flood protection for Castle Air Force Base, the City of Merced, and adjacent suburban and agricultural lands at an estimated federal cost of $73,400,000. The project is contingent upon inclusion of a 2,800-acre wildlife easement area on the lower reaches of Bear Creek.

The Reclamation Board strongly recommends an appropriation of $4,000,000 in fiscal year 1984-85 for the Merced County Streams Project.

B. Sacramento River and Major and Minor Tributaries: Improvement of Sacramento River Major and Minor Tributaries was authorized in 1944 and further amended in 1950. This project provides for revetment for protection of bypass levee slopes against erosion. The bypass levee revetment features of the project will provide protection to flood plains adjacent to the bypasses and will decrease requirements for levee repairs under emergency conditions.

The Reclamation Board recommends appropriation of $200,000 in fiscal year 1984-85 for this project.

C. Sacramento River Bank Protection: The project, authorized in 1960, is a long-range Federal-State effort, aimed at preserving the existing project levee system of the Sacramento River. These existing levees, which offer flood protection to the Central Valley over a reach of 185 miles, are very old and subject to constant erosion. The Sacramento River Bank Protection Project work consists of sloping and placing stone protection at those points which are identified each year as the most critical. Again in the 1983-84 flood season, increased damage occurred which further threatens existing project levees. On this project, all costs are shared with the Federal Government paying two-thirds and the State one-third.

The Reclamation Board recommends approval of an appropriation of $4,000,000 in fiscal year 1984-85 for the Sacramento River Bank Protection Project.

D. Sacramento River - Chico Landing to Red Bluff Project:

This project, authorized in 1958, comprises extension and modification of the existing Sacramento River Flood Control Project by the construction of bank protection and minor channel improvements along the Sacramento River between Chico Landing and Red Bluff.

The Board recommends funding for the Chico Landing to Red Bluff Project in the amount of $4,000,000 in fiscal year 1984-85 to protect critical sites or sites which can be demonstrated as having a detrimental effect on the Sacramento River Flood Control Project.

E. Fairfield Streams Group:

The project is located in the vicinity of the cities of Fairfield and Suisun in Solano County; the drainage basin comprises 45.8 square miles. There are five streams on which improvements are proposed. These are Ledgewood, Laurel, Union Avenue, Pennsylvania, and McCoy Creeks. The project as presented in the Corps of Engineers, Phase II GDM, included channel improvements and diversion of three creeks, levees on two of the creeks, and construction of recreation facilities.

After completion of the preconstruction planning studies, local interests were not in a position to provide local cooperation assurances for the project. Therefore, the Corps placed the project in a deferred status in September 1977. However, as a result of January 1982 flood damages in the project area, there has been renewed interest in the project. In April 1982, both the Cities of Fairfield and Suisun requested the Corps to reactivate the project. The Cities stated they intended to provide local assurances for a slightly modified project. Based on this support, the Corps reclassified the project to active status on June 1, 1982. In August, the State Reclamation Board indicated its willingness to provide the local cooperation assurances for the project. The project is now being considered by the Corps of Engineers for a construction new start in fiscal year 1984-85.

The Reclamation Board recommends approval of an appropriation of $1,200,000 in fiscal year 1984-85 for the Fairfield Streams Group.

F. Lower San Joaquin River, Continuing Construction: The Lower San Joaquin River Project was authorized in 1944 and by PL 98-63, the 1983 Supplemental Appropriations Act. The existing project completed in 1968 consists of channels, levees, and riverbank revetment from Friant Dam on the San Joaquin River to Stockton, a distance along the River of about 225 miles.

The needed work includes selective channel clearing and removal of debris and bars to restore channel capacity to historic levels on the San Joaquin River.

The Reclamation Board recommends approval of an appropriation of $2,000,000 in fiscal year 1984-85 for the San Joaquin River continuing construction project.

U. S. Bureau of Reclamation Projects

Auburn Dam:

Auburn Dam, part of the Central Valley Project, was authorized in 1965. Auburn Dam and Reservoir is located on the North Fork of the American River adjacent to the City of Auburn. The dam height when constructed will be 700 feet. Auburn Reservoir will have a capacity of 2,300,000 acre-feet. The Reservoir will add 250,000 acre-feet of flood control space to the American River system.

The population centers of Sacramento, North Sacramento, Arden, Brighton, Carmichael, Fair Oaks, Folsom, and Rancho Cordova lie partially within the natural American River floodplain.

The present Folsom Dam and levee system do not provide adequate flood protection against a Standard Project Flood. The part of the metropolitan Sacramento area that would be flooded by the Standard Project Flood is estimated to have a population of about 160,000 people, according to the 1980 census. Auburn Dam and Reservoir will provide additional flood protection to the population centers of the metropolitan Sacramento area.

The Reclamation Board recommends appropriation of $5,250,000 in fiscal year 1984-85 for planning and design activities.

OAKDALE IRRIGATION DISTRICT LOAN

STATEMENT OF TOM VAN RUITEN, PRESIDENT, OAKDALE IRRIGATION DISTRICT

ACCOMPANIED BY:
WILLIAM HURST, MANAGER
DOUGLAS KUHLMAN, DIRECTOR

Mr. DODSON. Next is Mr. William Hurst, manager of the Oakdale Irrigation District.

Mr. VAN RUITEN. Mr. Chairman, I am Tom Van Ruiten, president of the Oakdale Irrigation District.

On behalf of the Oakdale Irrigation District and all the people of our district I want to thank you for the opportunity to appear before you this afternoon.

First, we want to thank you and your committee for the part you played last year. You appropriated $1.5 million and this has been received and has gone toward engineering planning and equipment purchases and supplies in support of our operation. Now they plan to go to work and that is to put the pipeline in the ground so that benefits of the project, the 30 percent savings of our water, can begin to be realized.

We respectfully request your help in obtaining the $6.5 million that the President has written into the budget for our project in fiscal year 1985.

Thank you kindly.

Senator MATTINGLY. Thank you.

[The statement follows:]

STATEMENT OF TOM VAN RUITEN, PRESIDENT, OAKDALE (CALIF.) IRRIGATION DISTRICT

The Oakdale Irrigation District appreciates the efforts of you and your committee to obtain an initial appropriation of $1.5 million for fiscal year 1984. As you know, the project was authorized last year in accordance with the Small Reclamation Projects Act.

Following the congressional action, the district completed negotiations of its repayment contract with the regional office of the Bureau of Reclamation, had a favorable election (87.7 percent for), and executed the repayment contract in January of this year. Our engineers have submitted the required master schedules to the Bureau of Reclamation and have conducted the predesign conference. Design of our project is underway and is on schedule as planned.

As you know, the project is for rehabilitation of our 75-year-old system by piping open ditch laterals. This will result in water conservation through better management and control of water. We look forward to improved operations following completion of construction. The project is consistent with the President's policy on cost sharing (the Small Reclamation Projects Act requires it), and it represents a valuable Federal/local district partnership for better, more efficient management of our valuable water resources. The total project cost and sharing of costs are as follows:

Federal loan	$17,845,000
District contribution	4,244,000
Total project cost	22,089,000

The President's budget for the Bureau of Reclamation's loan program indicates $6.5 million for Oakdale Irrigation District in fiscal year 1985. We support this appropriation as adequate and within our capabilities to administer. The schedule for appropriations, including our current estimates for future appropriations, is summarized as follows:

[In millions of dollars]

Fiscal year 1984	$1.500
Fiscal year 1985	6.500
Fiscal year 1986	4.700
Fiscal year 1987	5.145
Total	17.845

Senator, a bill has recently been introduced in Congress to amend the Small Reclamation Projects Act (SRPA) of 1956. This bill, S. 1981, proposes an extension of the authorization ceiling so that this very successful reclamation program can continue in a timely manner.

The SRPA program has enjoyed the support of Congress for over 25 years. The loans are repaid 100 percent, some with interest. The money is used for facilities that make possible the continued production of food and fiber, as well as the creation of permanent jobs. We respectfully request your active support of this bill to increase the existing ceiling of $600 million an additional $600 million effective October 1, 1984.

Thanks again for your help and continued support of these cost-effective reclamation programs.

COLUSA COUNTY WATER DISTRICT LOAN

STATEMENT OF LEE L. EMRICK, ENGINEER-MANAGER, COLUSA COUNTY WATER DISTRICT

Mr. DODSON. Next, Mr. Lee Emerick, engineer-manager of the Colusa County Water District.

Mr. EMRICK. Thank you, Mr. Chairman.

I am representing the Colusa County Water District and thank you for this opportunity.

Our written statement has been submitted for the record and I will not comment further. We sincerely appreciate the past support the committee has given our project.

[The statement follows:]

STATEMENT OF CLOYDE EMRICK, MANAGER, COLUSA COUNTY (CALIF.) WATER DISTRICT

I am Cloyde Emrick, manager of the Colusa County Water District in the service area of the Tehama-Colusa Canal, Sacramento River Division of the Central Valley Project.

The President's budget contains a Bureau of Reclamation item of $5,196,000 for the water district to continue design and construction of its agricultural water delivery system. We respectfully request your approval of this item.

The President's budget contains appropriations of $5,196,000 in 1985 for funding a Public Law 84–130 loan program for the Colusa County Water District. The district is in northern California and was formed in 1954 to receive water from the Tehama-Colusa Canal and distribute it to 40,000 acres of rich agricultural land. The Central Valley Project water augments the local ground water supplies and is essential to achieve the full productivity of our farms.

The district is comprised of small family farms which have been handed down for generations, many predating the accomplishments of the Central Valley Project. The Public Law 84–130 loan project will bring irrigation water to about one-third of our district, completing a distribution system which was started in 1965.

Our landowners are faced with failing ground water supplies and loss of large investments spent on development of their lands in expectation that water would be available unless water is made available soon from the Tehama-Colusa Canal. Additional water sales from the completed system will bolster repayment of the U.S. investment in the Tehama-Colusa Canal and contribute to the Nation's foreign exchange requirements through export of produce grown.

The people of our district greatly appreciate the assistance the Federal reclamation program provides and your committee's past support in appropriating funds to complete the irrigation facilities.

SACRAMENTO RIVER DIVISION, CALIF.

Mr. Emrick. Also, on behalf of the Westside Canal Association, I would submit the statement of that association for the record and request support for $100,552,000 for the Sacramento River division of the Bureau of Reclamation's project. That amount would fund the completion of the construction of the terminals. This request is supported by the supervisor of Colusa County and virtually all the water districts served by the canal.

Thank you.

Senator MATTINGLY. Thank you.

[The statement follows:]

STATEMENT OF TWYLA THOMPSON, PRESIDENT, SACRAMENTO VALLEY WESTSIDE CANAL ASSOCIATION

The Sacramento Valley Westside Canal Association supports and respectfully requests Fiscal Year 1984-85 appropriations for financing the following:

Item	Amount, $1,000
U.S. Bureau of Reclamation:	
Sacramento River Division	11,553
Loan Program:	
Colusa County Water District	5,196
Glide Water District	3,781

The Sacramento Valley Westside Canal Association (Association), from its inception, has supported construction of the Tehama-Colusa Canal, and the delivery of water from the Central Valley Project to all districts within the authorized service area. Using this opportunity, the Association reaffirms its support for completion of the Tehama-Colusa Canal project, and the distribution of water therefrom, which is essential to develop and sustain the agriculture that is vital to the economy of the Sacramento Valley. Specifically, the Association supports and respectfully requests appropriation for Fiscal Year 1984-85, as presented on the Association's statement.

Additionally, the Association supports the construction of a "large" Oat Reservoir at the terminus of the Tehama-Colusa Canal. In this regard, the Association unanimously approved adoption of the provisions of Resolution 84-1, which was passed by the Yolo-Zamora Water District on January 23, 1984, a copy of which is enclosed.

Your recognition and consideration of the Association's request is appreciated.

RESOLUTION 84-1

YOLO-ZAMORA WATER DISTRICT

WHEREAS, there is a need to construct an adequate regulating and storage reservoir at the terminus of the Tehama-Colusa canal; and the most desirable location for said reservoir is at what is known as Oat Creek where it intersects the eventual terminus of the Tehama-Colusa canal; and

WHEREAS, it is desirable that said reservoir be of sufficient size not only for water storage but as a regulating reservoir for the Tehama-Colusa canal system; and

WHEREAS, the service area of the Tehama-Colusa canal may eventually be extended south of Oat Creek so as to include portions of Yolo County that are not now within the authorized service area of the Tehama-Colusa canal; and

WHEREAS, it would be wasteful to expend funds for a smaller reservoir at this time only to have to enlarge the reservoir at a later date as water for such an enlarged service area becomes available; and

WHEREAS, an Oat Creek Reservoir of adequate size (approximately 14,000 acre-feet capacity) has been included in the President's proposed budget for fiscal 1984-85 at a partial cost of approximately $8,200,000.00;

NOW THEREFORE, BE IT RESOLVED:

(1) That the Yolo-Zamora Water District supports passage of the aforesaid appropriation for fiscal 1984-85 of 8.2 million dollars for the large Oat Creek Reservoir upon the following terms and conditions:

(a) That the water supply that will become available for the Tehama-Colusa canal service area out of the Coordinated Operating Agreement between the State of California and the U.S. Government be allocated first to the service area of the Tehama-Colusa canal as it now exists; and

(b) That the legislative report in support of the aforesaid appropriation specifically provide that the appropriation shall not be construed to constitute an "authorization by appropriation;" that any extension of said service area be done only by specific legislative authorization; and

(c) That the water requirements of the Yolo-Zamora Water District receive the highest priority as it has no supplemental water supply at the present time; originally applied for a water service contract as early as 1958, and is the only water district in the entire service area lying south of and at a lower level from the proposed Oat Creek Reservoir and Tehama-Colusa canal (a gravity canal) and is, therefore, essential for the complete functioning of the reservoir as both a regulating and water storage feature of the Tehama-Colusa canal; and

(d) That present and future needs for supplemental water in the existing service area of the Tehama-Colusa canal, and for any lands which may hereafter be annexed thereto, fully anticipate and take into account the impact of the following factors:

1. Changing crop patterns in the future which may require increased allocations of supplemental water.

2. All adverse effects such as boron or other contamination in the underground water supply.

3. The fact that an inadequate supply of supplemental water leads ultimately to overdrafting of the underground water supply thus causing subsidence in underground aquifers which is irreversible.

(2) That the secretary of the district be and he is hereby authorized and directed to deliver a copy of this Resolution to Congressman Vic Fazio, Senators Alan Cranston and Pete Wilson, the Regional Director of the Mid-Pacific Region of the Bureau of Reclamation, the California Water Commission, the Westside Canal Association, Yolo County Board of Supervisors, the Dunnigan Water District, and Yolo County Flood Control and Water Conservation

District; and that all of the aforesaid agencies be requested to support and adopt the same resolution.

Passed and adopted at a meeting of the Board of Directors of the Yolo-Zamora Water District on the 23rd day of January, 1984, by the following vote:

AYES: Directors Kelsey W. Hatcher, James H. Long, Jack D. Mast, and Verne Wetzel.

NOES: None

ABSENT: Bernie Gorman, Jr.

Dated this 23rd day of January, 1984.

Kelsey W. Hatcher, President

ATTEST:

Russell Millsap, Secretary

I hereby certify that I am the Secretary for the said Yolo-Zamora Water District and that the above and foregoing resolution was duly moved, seconded and carried and adopted by the Yolo-Zamora Water District Board of Directors at a regular meeting held at the office of the District at the office of Millsap, Millsap & Thompson, at Woodland, Yolo County, California on January 23, 1984.

Russell Millsap, Secretary

GLIDE WATER DISTRICT LOAN

STATEMENT OF MARSHALL JONES, CONSULTING ENGINEER, STANISLAUS, CALAVERAS, AND TUOLUMNE COUNTIES AND GLIDE WATER DISTRICT

Mr. DODSON. Next, on my left, Marshall Jones who is consulting engineer for Stanislaus, Calaveras, and Tuolumne Counties, and also for the Glide Water District.

Mr. JONES. Thank you, Mr. Dodson.

Mr. Chairman, I would like to submit a statement on behalf of the Glide Water District for your record. This statement supports the President's budgeted figure for continuing work on their Public Law 130 irrigation distribution system.

Second, I also have a statement for your record on behalf of Stanislaus County in support of the President's budgeted figure for the Bureau of Reclamation to conduct studies of conveyance systems to distribute on New Melones water out of the Tuolumne River.

Third and lastly, I want to submit a statement for your record on behalf of the Stanislaus, Calaveras, and Tuolumne Counties and the cities of Angels, Ripon, and Sonora. This statement is in support of funding for the Corps of Engineers to build certain recreation facilities associated with the New Melones Reservoir and along the lower Stanislaus River. This work has been lagging since the project was completed in 1978 and even in the absence of recreation facilities the people are flocking to the area, so these proponents of this work would like to have an augmentation of the Corps' amount in the President's budget and they would like another $3.5 million to speed up their work.

Thank you very much.

Senator MATTINGLY. Thank you.

[The statements follow:]

STATEMENT OF MARSHALL JONES, ENGINEER, GLIDE WATER DISTRICT, CALIFORNIA

Summary.—The Glide Water District is located in the Sacramento Valley in Glenn County in northern California. The district lies within the service area of the Central Valley Project Tehama-Colusa Canal. The Tehamas-Colusa Canal is completed and district lands have been developed for irrigation. The district is requesting that $3,781,000 be included in the 1985 fiscal year budget for its Public Law 84-130 loan for continuing construction of the distribution system to deliver water from the Tehama-Colusa Canal to a portion of district lands, Improvement District No. 1.

The Glide Water District is requesting that funds be included in the 1985 fiscal year budget for its Public Law 84-130 loan for continuing construction of an underground pipeline irrigation distribution system. The estimated cost of the distribution system is $6,099,300, of which the district will provide $199,300, resulting in a loan amount of $5,900,000. The district requests $3,781,000 for fiscal year 1985. The loan funds will be repaid over a 30-year period.

The distribution system is required to deliver Tehama-Colusa Canal water to landowners within the district's Improvement District No. 1, which is comprised of 4,900 irrigable acres.

Water has been available from the Tehama-Colusa Canal for several years, but construction of the distribution system has been delayed because of budgetary restraints during fiscal years 1982 and 1983. Our landowners urgently need the distribution system so that Central Valley Project water can be brought to their lands. They have made large investments in land leveling and development of on-farm irrigation works in anticipation of water being available. Further, repayment to the Government of the cost of the Tehama-Colusa Canal is wholly dependent upon sales of water to our district and others.

We respectfully request that your committee approve $3,781,000 for this project for fiscal year 1985. We greatly appreciate the help your committee has provided in development of the Central Valley Project, and especially the Tehama-Colusa Canal which is vital to our area.

STATEMENT OF MARSHALL JONES, WATER CONSULTANT, STANISLAUS COUNTY, CALIF.

> *Summary.*—The Federal New Melones Dam and Reservoir project on the Stanislaus River in California is complete and storing winter flood water for irrigation, power generation, flood control, fishery enhancement, and water quality control. To prepare for negotiation of contracts for sale of irrigation water to the farmers, the Bureau of Reclamation needs to prepare conveyance system layouts and cost estimates to determine cost of water. Needed is $550,000 for this work in fiscal year 1985.

The New Melones project on the Stanislaus River in California's Central Valley was completed in 1980 to provide flood control and to store surplus winter flows for irrigation, power generation, fishery enhancement, and water quality control. Repayment of the irrigation portion of the project's cost will come from sales of water to irrigation districts in the project service area. Preliminary conveyance system layouts and cost estimates are needed to evaluate the cost of delivering water to individual users. For fiscal year 1985, the Bureau of Reclamation needs $550,000 for this work. To assure repayment of the project's costs, water sales must be made and the necessary surveys and studies should be completed soon.

STATEMENT OF MARSHALL JONES, WATER CONSULTANT, STANISLAUS COUNTY, CALIF.

> *Summary.*—This statement is submitted on behalf of the Counties of Calaveras, San Joaquin, Stanislaus, and Tuolumne, and the cities of Angels, Ripon, and Sonora.
>
> The New Melones project on the Stanislaus River in California was completed in 1978. The reservoir is full and downstream flows are regulated to provide excellent recreational conditions. The congressional authorization for the project provides for Federal construction of recreational facilities to a total of $46,190,000. To date, including fiscal year 1984 funding, only $15,755,000 has been spent. Large numbers of people are flocking to the area placing heavy financial burdens on the local police and public works staffs.
>
> For fiscal year 1985 we urge that $3,293,000 be added to the President's budget of $4,500,000, for a total of $7,793,000 to provide facilities at the most critical sites.

The Flood Control Act of 1944, subsequently modified by the Flood Control Act of 1962 (Public Law 87-874), authorized construction of the New Melones Dam and Reservoir and construction of general recreational facilities around the lake and along the lower Stanislaus River. In addition, it authorized full funding for all construction costs as well as future operation and maintenance costs.

The Federal Government, through the Corps of Engineers, made a firm commitment in its master plan and during extensive public hearings on the project to construct these recreational areas. The New Melones Dam was completed in 1978. To date, including fiscal year 1984, only $15,755,000 of the planned total cost of $46,190,000 for recreational facilities has been spent. Meanwhile, with the reservoir full and lower river flows regulated, large numbers of people are flocking to the area. Without adequate sanitary and parking facilities, heavy burdens are being borne by the local police and public works forces without means of funding.

The present administration, contrary to the congressional authorization, has determined that construction of the remaining facilities can be completed only if non-Federal agencies (counties, cities, etc.) share in the cost of construction and assume totally ongoing maintenance responsibility.

The local governments surrounding the New Melones-lower Stanislaus recreation areas do not have the funds to relieve the Federal Government of its commitment or share in the cost of developing recreation areas for the hundreds of thousands of visitors who are expected to utilize the facilities, most of whom reside outside of the affected cities and counties.

Recognizing the financial constraints facing the Federal Government, the four counties surrounding the project area have developed a minimum improvement plan which meets the essential needs of the users without placing undue burden on the affected local government agencies. Accordingly, to make reasonable progress toward this objective, we are requesting that the $4,500,000 provided in the President's fiscal year 1985 budget be increased by $3,293,000 to $7,793,000.

SACRAMENTO-SAN JOAQUIN DELTA SUPPORT STUDIES

STATEMENT OF JOHN DeVITO, GENERAL MANAGER, CONTRA COSTA WATER DISTRICT

ACCOMPANIED BY:
CRAIG Z. RANDALL, PRESIDENT
DANIEL PELLEGRINI, DIRECTOR

Mr. DODSON. Next, is John DeVito, general manager of the Contra Costa Water District.

Mr. DEVITO. Senator, may I first introduce the only man who has ever beaten the chairman, Senator Hatfield, in an election, Mr. Craig Randall, who defeated him for high school president in Salem, Oreg.

Also, Mr. Daniel Pellegrini who is a member of our board of directors.

Senator, the Contra Costa Water District appropriation request deals with the water quality of the Sacramento-San Joaquin Delta not only on our behalf, but that happens to be the water crossroads of the State of California, on behalf of some 400,000 acres of highly valuable developed land in the delta and on behalf of some millions of acres of land in the San Joaquin Valley. Quality water is very important to over half of the State population.

We respectfully thank you for this opportunity to appear and to ask that our statement be made part of the record.

Thank you.

Senator MATTINGLY. All right, without objection.

[The statement follows:]

STATEMENT OF JOHN E. DEVITO, GENERAL MANAGER, CONTRA COSTA (CALIF.) WATER DISTRICT

SACRAMENTO - SAN JOAQUIN DELTA WATER QUALITY

Honorable Chairman and Committee members, my name is John E. DeVito, General Manager of the Contra Costa Water District, a public agency of the State of California.

For over forty years, Contra Costa Water District by way of repayment contracts with the U.S. Bureau of Reclamation, has been responsible for the water supply for some 300,000 people, 23 industries that employ over 16,000 employees, and 150 small firms, through the Contra Costa Canal System, the first unit of the Federal Central Valley Project. The District also diverts water from the Delta under a vested water right dating back to the 1930's prior to the CVP. We depend solely and totally on the Sacramento - San Joaquin Delta for our water supply.

Due to the USBR's over-commitment of the CVP water supply and build-ups in exports from the Delta, we will experience re-occurring increased salt water intrusion in the Delta, to a level that is adverse to public health, causes loss of certain industrial products, adds severe penalty treatment costs to all industry, and causes damage to irrigated plants. (Note attchments.)

These adverse effects on public health, industry and agriculture occurred during 1959 - 1960 - 1961, due to USBR operations, and occurred again during the 1976 - 1977 drought, due to the obvious over-commitment of the CVP. For 161 days in 1979 and 143 days in 1981, due to export pumping caused salt water intrusion, the Water District distributed notices to the county Health Department, doctors, hospitals, and the press warning of high sodium levels in the water supply. USBR statements indicate that these poor water quality levels will occur in the future during normal years.

Accordingly, Contra Costa Water District supports the conditions necessary to protect the beneficial uses in the Sacramento-San Joaquin Delta, San Francisco Bay, and Suisun Marsh as stated by the District and California Water Commission with particular attention to:

No. 20 Sacramento Ship Channel

Based on the letter of agreement between State and the Corps dated 3 February, 1981, as described in "San Francisco Bay to Stockton Ship Channel" (Item 33), Contra Costa Water District supports the funding of detailed engineering studies for deepening the Sacramento deep water channel, and urges the Corps of Engineers to proceed expeditiously with the program to upgrade the capability of the Corps Bay-Delta Model to measure and record changes in salinity and other related matters.

No. 29 New Melones Lake

The Contra Costa Water District reaffirms its' position that the appropriations should be conditioned to provide that New Melones Reservoir shall be operated in accordance with the provisions of Decision 1422 of the State Water Resources Control Board. Contra Costa Water District support is contingent upon expeditious acquisition of reparian habitat and flood easements downstream of the dam and resolution of downstream salmon problems related to release schedules, flow and temperature.

No. 33 San Francisco Bay to
Stockton Ship Channel

DWR and the Corps have approved a letter of agreement dated 3 February 1981, regarding the deepening of the Stockton and Sacramento Ship Channels. It provides that DWR will not object to the Corps completing construction work on the Stockton Ship Channel. If studies and tests to be conducted by the Corps determine that deepening the channels will cause a significant or measurable increase in salinity incursion, the Corps will conduct model tests of mitigation measures, including a sill in Carquinez Strait, and will recommend implementation of such measures and an allocation of the cost between the Stockton and Sacramento Ship channel projects.

The Corps should determine the Stockton Ship Channel deepening project's input on the dissolved oxygen problems in the San Joaquin River if any, and propose methods of mitigation if appropriate. We urge the Corps to complete an agreement with the Department of Fish and Game.

No. 46 Auburn - Folsom South Unit

The Contra Costa Wate District supports economic, environmental and fish and wildlife studies recommended by former Secretary of the Interior.

The Contra Costa Water District opposes appropriations of construction of Auburn Dam unitl the following have been completed:

1. Congress has reauthorized Auburn Dam.
2. A momorandum of understanding or water service contracts for 75% of the water yield have been executed;
3. The Bureau of Reclamation agrees to comply with provisions of Decision 1400 of the California State Water Resources Control Board;
4. The State has approved the design of the dam finally selected.

The State Water Resources Control Board, Department of Water Resources and Bureau of Reclamation have executed an agreement dated July 16, 1979 providing for coordination of Water Rights, environmental impact statement review and federal project authorization.

No. 50 San Luis Drain

Due to recent USBR stated intentions on the location of the San Luis Drain point of discharge, Contra Costa Water District must expand its' position on behalf of the water supply integrity of not only the beneficial uses of the Contra Costa Water District, the Bay and Delta but on behalf of all California who must bear the economic and environmental consequences of an over-committed Federal and State water supply. We therefore respectfully recommend that there be inserted the following amendment in the 1983 Appropriations Act:

"Provided further, that construction of the Drain extension north of Kesterson Reservoir shall not be initiated, and the final point of discharge for the interceptor drain for the San Luis Unit shall not be determined until:

1. An NPDES permit for the proposed discharge to the Delta has been issued by State Water Resources Control Board and approved by Administrator, U.S. Environmental Protection Agency.
2. Any necessary treatment facilities and storage shall be in place and fully operable prior to initiation of discharge.
3. Sufficient storage shall be provided that, if and when necessary, discharge to Delta water could be limited to those times during the tidal cycle when the discharge would have minimum adverse impact on Delta Water quality.
4. The Drain system is so designed, constructed, and operated that discharge to Delta waters could be stopped during critically dry periods.
5. Those entities discharging to the Drain are required to develop and implement conservation programs which will minimize the discharge of both water and pollutants to the Drain.
6. A continuing detailed monitoring program is developed.
7. Contra Costa Water District reaffirms in general its' opposition to new budget authority for the San Luis Drain until the Bureau of Reclamation agrees that the federal Central Valley Project and the State Water Project will be operated to

meet the identical water quality standards in the Delta as proposed in the coordination of operations agreement.

No. 61 Delta Support Studies
including Suisun Marsh

Bureau of Reclamation and Department of Water Resources agree operation of Central Valley and State Water Projects have adverse effects of municipal, industrial and agricultural users as well as on fish and wildlife in the Sacramento-San Joaquin Delta and the San Franciso Bay Estuary. State Water Resources Control Board's Decision 1485 requires environmental studies be continued for use in future State water rights hearings.

Contra Costa Water District urges full fundings for these studies including efforts in the Suisun Marsh.

No. 62 San Felipe Division

Contra Costa Water District strongly urges Congress not to underfund or lower the budget level. More cuts will seriously disrupt the plans to meet the needs of Santa Clara and San Benito Counties.

The Contra Costa Water District urges the Congress to provide that diversions of water from the Delta by the Bureau of Reclamation be subject to federally approved Delta water quality standards.

No. 80 Feasibility Investigations
Kellog Unit Reformation
Delta Division

Consistent with the federal cost-sharing policy, Contra Costa Water District has urged the USBR Regional Director, Mid-Pacific Region, to develop a plan of study for Kellog Reformation that provides for in-kind contributions at Water District expense, and to the extent District contributions meet the requirements of federal law, regulations and policy, should be credited to project costs.

Contra Costa Water District supports funding of feasibility investigation of Los Vaqueros Reservoir and relocation of Contra Costa Canal intake. Los Vaqueros could also be used to provide an urgently needed standby or emergency water supply for other Bay Area water agencies such as East Contra Costa Irrigation District, Santa Clara Valley Water District, Alameda County Water District, Alameda County Flood Control and Water Conservation District Zone 7, East Bay Municipal Utility District, City of San Francisco, etc.

State and USBR have executed a memorandum of understanding dated December 12, 1980 regarding a joint investigation of the Los Vaqueros-Kellog project including relocation of Contra Costa Canal intake. Contra Costa Water District supports $10 ($10,000) for fish and wildlife studies.

No. 86	Environmental and Interagency Coordination Activities, Mid-Pacific Region
No. 85	Fish and Wildlife Management Study

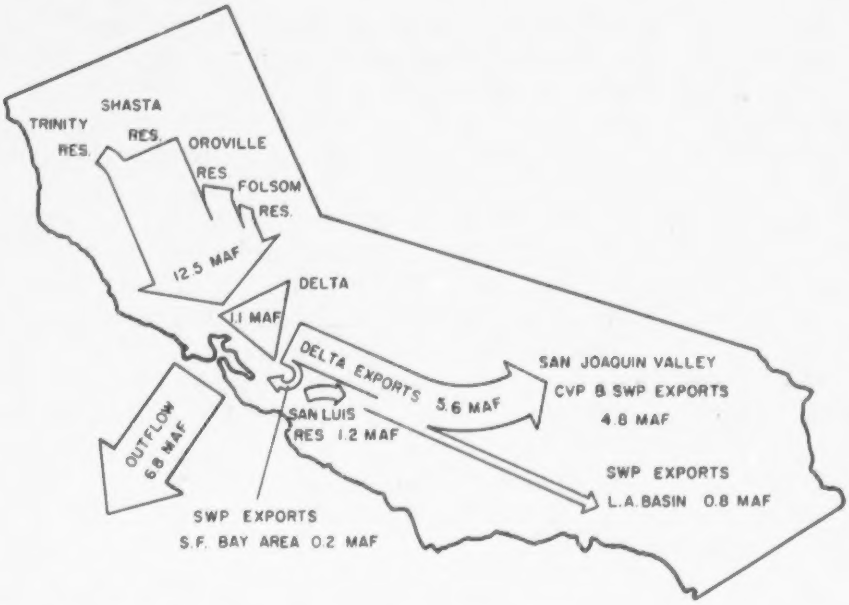
In summary, our comments in the past and specifically at this time, recognize and commend the wisdom of the Congressional enactment of Public Law 95-46 -- The San Luis Task Force Study -- which study "points to the need for profound changes in Bureau of Reclamation procedures in some instances and legislative changes in others".

Please accept our appreciation for this opportunity to appear, and may this statement be made part of the record.

DELTA WATER SUPPLY AND USE - 1981

Water year 1981 (October 1, 1980 through September 30, 1981) has been a dry year in the Sacramento River Basin. Natural river inflow to four major storage reservoirs totalled 11 million acre-feet (MAF), about 64 percent of the long-term average.

The diagram shows that the Sacramento-San Joaquin Delta received total river inflow of 12.5 MAF during the dry year. The inflow was augmented by 1.4 MAF released from major storage reservoirs of the Federal Central Valley Project (CVP) and the State Water Project (SWP).


TRINITY RES.
SHASTA RES.
OROVILLE RES
FOLSOM RES.
12.5 MAF
DELTA
1.1 MAF
DELTA EXPORTS 5.6 MAF
SAN JOAQUIN VALLEY
CVP & SWP EXPORTS
4.8 MAF
SAN LUIS RES 1.2 MAF
OUTFLOW 6.8 MAF
SWP EXPORTS
L.A. BASIN 0.8 MAF
SWP EXPORTS
S.F. BAY AREA 0.2 MAF

Use of the Delta's 1981 inflow is summarized as follows:

Outflow to San Francisco Bay	6.8 MAF	54 percent of Inflow
Water used within Delta	1.1	9
CVP and SWP project pumping	4.6	39
	12.5 MAF	100 percent

The projects' Delta exports were increased by 1.2 MAF withdrawn from San Luis Reservoir, near Los Banos, bringing the water available for distribution to service areas south of the Delta to 5.8 MAF. Project deliveries to major regions of California were:

San Francisco Bay Area (SWP)	0.2 MAF	3 percent of Deliveries
San Joaquin Valley (CVP & SWP)	4.8	83
Southern California (SWP)	0.8	14
	5.8 MAF	100 percent

Caliente Creek, Calif.

STATEMENT OF BEN AUSTIN, SUPERVISOR, KERN COUNTY, CALIF.

ACCOMPANIED BY:

- **L. DALE MILLS, DIRECTOR OF PUBLIC WORKS**
- **TERRY PAXTON, CHIEF, DRAINAGE AND FLOOD CONTROL, KERN COUNTY DEPARTMENT OF PUBLIC WORKS**
- **STUART PYLE, ENGINEER-MANAGER, KERN COUNTY WATER AGENCY**
- **AMALIO GOMEZ, CONSULTING ENGINEER**

Mr. Dodson. Next is Ben Austin, supervisor of Kern County.

Mr. Austin. Mr. Chairman, my name is Ben Austin. I am chairman of the board of supervisors of Kern County.

Thank you for the opportunity to be here. I will be brief in consideration for my colleagues whose projects are only slightly less important than mine.

Caliente Creek is not a new project; this is an ongoing study. We believe that the Corps of Engineers has a solution for this project. Caliente Creek in the past has killed 19 people. In the last 5 years the damage created by this creek on farms and homes has been in excess of $50 million. The Corps, we believe, must be allowed to find a solution to the problems along the creek. I don't want to come back to this committee or any other committee and say Caliente Creek has killed more people.

Thank you for your kind invitation.

Senator Mattingly. Thank you.

[The statements follow:]

STATEMENT OF BEN AUSTIN, SUPERVISOR, KERN COUNTY, CALIF.

My name is Ben Austin and I hold the office of Supervisor of the Second Supervisorial District of Kern County, California. I am also Chairman of the Kern County Board of Supervisors and I appear here today on behalf of the County of Kern.

With us today are representatives from Kern County who want to impress upon you the vital importance of continuing the present studies directed at solving the flood problems of Caliente Creek in Kern County. These people will not address you at this time, but they do want you to know that they are present. They are: L. Dale Mills, Director of Public Works; Terry L. Paxton, Public Works Civil Engineer in Drainage and Flood Control and Stuart T. Pyle, Engineer-Manager of the Kern County Water Agency. In addition, we are privileged to include in our representation Mr. Amalio Gomez, Consulting Engineer, a man familiar to many of those in the Corps of Engineers for his outstanding career in flood control, both here and abroad.

Mr. Pyle does have information regarding local efforts by the Kern County Water Agency to solve our long-standing flooding problem. His statement, together with supporting data, are included with my statement as part of a complete package.

Historically, the Caliente Creek Basin has been subject to very heavy flood damage in its concentrated urban and agricultural areas. Early last year (1983), the Basin experienced a flood which caused heavy damage to roads, homes, public facilities and farmlands. We do not know how long this condition has existed - we only know that it must be corrected. The earliest record goes back only to 1901 and the earliest report by the State Division of Water Resources goes back only to 1933. More importantly, with a history of repeated floods we have been extremely fortunate in human terms - if you can call the loss of 19 lives fortunate. This is the toll from floods of September, 1932 and October, 1945. Why lives were not lost in the disastrous March, 1983 flood can only be considered an act of God. I do not want to appear before you again in some future year pleading for these funds...with a report of lives lost.

You may have heard that there is a lack of consensus among our people with regard to how a flood control system would be instituted - not whether a flood control system should be installed. It is my firm belief and the belief of our experts that given solid viable alternatives presented by flood control experts there will be a consensus - because it would mean purely and simply a cessation of the threat to lives and to crops in this...one of the major breadbaskets of our nation...as well as a lessening of the threat to human life - - and, after all, this is most important to all of us.

The Corps of Engineers has made reconnaissance studies recently. Its preliminary finding is that a dam and a reservoir project does not look very favorable, but that a channel improvement project through the valley floor looks economically feasible. The people who live in the flood plain and the source of their economic life - agriculture - would be better served by a dam and a reservoir project with minor supplementary channel work.

To this end, we have retained the services of several consulting engineers to review the preliminary findings of the Corps. Their view is that sufficient new hydrological and flood damage data have been compiled after the Corps made its preliminary findings to justify a dam and a reservoir project at the foothill line with minor supplementary channel improvements through the valley floor. We know now, for example, that damages were, at the least, forty percent greater than was shown in the original 1983 estimate.

On the basis of the foregoing, we believe very strongly that the corps studies should be continued next September, and that they should be funded through fiscal year 1984-85. An appropriation of $250,000, as recommended by the California Water Commission, is amply justified.

In closing, how long can we go on hoping that lives will be spared when we have major storms every four or five years. How much longer can our citizens take the staggering economic damage to their homes, farms and business properties! We must do something. Flooding has gone on far too long and it is far too dangerous and far too expensive a process to continue any longer. There is urgent need to move on this problem. In order to do so, it is essential that the Corps of Engineers' studies be funded through fiscal 1984-85 by the appropriation of $250,000. On behalf of Kern County and the people in my District, I urge that these funds be appropriated -- and thank you for the opportunity to bring my message here.

HISTORIC FLOOD DAMAGE

CALIENTE CREEK

YEAR	ACRES INUNDATED	DAMAGE AT YEAR OF FLOOD	DAMAGE AT OCT 1982 PRICE LEVELS
1932	8,000	$ 1,000,000 1/	$ 6,730,000
1943	11,700	100,000	530,000
1944	7,600	200,000	1,050,000
1945	7,300	200,000	1,030,000
1966	4,800	1,100,000	3,508,000
1969	5,800	500,000	680,000
1978	13,000	7,600,000	10,630,000
1983	12,000	25,000,000 2/	25,000,000 2/

1/ Highly influenced by damage to railroad train and tracks.

2/ Tentative results of damage survey conducted by Kern County Water Agency; Corps of Engineers Preliminary Estimate was $18,000,000; 1983 price levels.

STATEMENT OF STUART T. PYLE, ENGINEER-MANAGER, KERN COUNTY (CALIF.) WATER AGENCY

My name is Stuart T. Pyle, and I am the Engineer-Manager of the Kern County Water Agency in Bakersfield, California. I am also representing the Caliente Creek Flood Control Tast Force and am here before you today to request your support for a $250,000 appropriation to continue the Corps of Engineers' Caliente studies at the feasibility level in FY 84-85.

The President's budget has omitted funding for the Caliente Creek studies next year. We have been advised that the reason for this omission was that preliminary studies do not indicate that a storage reservoir project is feasible. However, the Kern County Water Agency has recently compiled a more comprehensive sample damage survey of March, 1983 Caliente flood damage. The results of that survey indicate preliminary damage estimates may have been too low. The Corps of Engineers is presently evaluating the results of our survey. Based on the current, updated damage assessment, we are most optimistic that the new data will indicate complete feasibility of that storage reservoir project.

Moreover, there is very strong local consensus supporting a storage reservoir project to control Caliente flood waters. Since last year's flood, local interests have banded together to form a Caliente Creek Flood Control Task Force, hired engineering consultants to work with us and the Corps toward a feasible project proposal, and collectively spent about $62,000.

In addition, we have invested $30,000 in a sophisticated flood warning system that is being installed to warn flooding victims of probable flooding in the interim period until a project is realized. The truth is that local support and commitment--including financial commitment--is strong for a Caliente flood control project. We have made assurances to the Corps and the California Water Commission that we are willing to comply with federal Congressional requirements for cost-sharing with regard to the feasibility studies.

When we appeared before this Subcommittee last year, we had just experienced damaging floods costing an estimated $13 million. Our random sample survey previously mentioned indicates that the total damages were actually in the neighborhood of $25 million--and that was only for a 37- year flood event. The Corps of Engineers has determined that 100-year flood peak on Caliente Creek is about 36,000 cubic feet per second, about three times as high as the 12,800 cubic feet per second that we saw in the March, 1983, flood.

Clearly, this project is needed. We appreciate your continued support. Thank you.

KCWA

MEMORANDUM

TO: Caliente Creek Task Force Members

FROM: Stuart T. Pyle

SUBJECT: KCWA Flood Damage Survey of the Lamont Area

DATE: March 22, 1984

Attached for your review is an Agency staff memorandum explaining the results of the Agency's random sample survey of the March, 1983, Caliente Creek flood damages in the Lamont area.

An extrapolation of the survey's approximately $16.4 million sample damage figure indicates a realistic total damage figure of about $25 million for the entire flooded area. Last year's flood is estimated to be a 37-year event.

However, Corps of Engineers' preliminary estimates of damages for a 35-year event total about $18 million, as represented in their flood damage-frequency relationship curve provided us in July of 1983 (attached). The Corps' preliminary estimates upon which this curve is based were made prior to the March, 1983, flood; and it is our understanding that the Corps based its evaluation of last year's flood damages on these same preliminary estimates. The extrapolations the Agency has made based on the results of the random sample survey are essentially rough estimates. However, these rough estimates are in fact based upon first-hand consideration of the actual damages. The results of this survey indicate that $25 million is a more accurate assessment of a 35-year event than the Corps' $18 million estimate--a significant $7 million difference. Verification and confirmation of the survey results by the Corps would result in a favorable revision of the Corps' average annual damage, benefits and benefits-to-cost ratio calculations.

The Corps is in the process of analyzing the Agency's survey results. In recent telephone discussions with Corps staff, we understand that at this writing, the Corps' analysis supports our preliminary findings.

KCWA
MEMORANDUM

TO: Stuart T. Pyle

FROM: Darrell Sorenson and George Ribble

SUBJECT: Caliente Creek Flood Damage Survey Analysis

DATE: March 22, 1984

The Agency has completed a random sample flood damage survey of the 1983 flooding in the Lamont area caused by Caliente Creek. The damage sample includes the following categories: agriculture, public facilities, commercial property and urban property, administrative and post equipment repair. The total damages from the sample for these categories amounts to approximately $16.4 million. However, the Corps of Engineers will need to extend the random sample to the limits of the 1983 flood. The following is a breakdown of the damages in the sample for the categories surveyed:

Agriculture	$11,000,000
Public Facilities	3,700,000
Commercial Property	566,000
Urban Property	950,000
Administrative and post equipment repair	150,000
Total	$16,366,000

This information has been submitted to the Corps of Engineers for their review. The Corps must go through the following steps to determine a new B/C ratio:

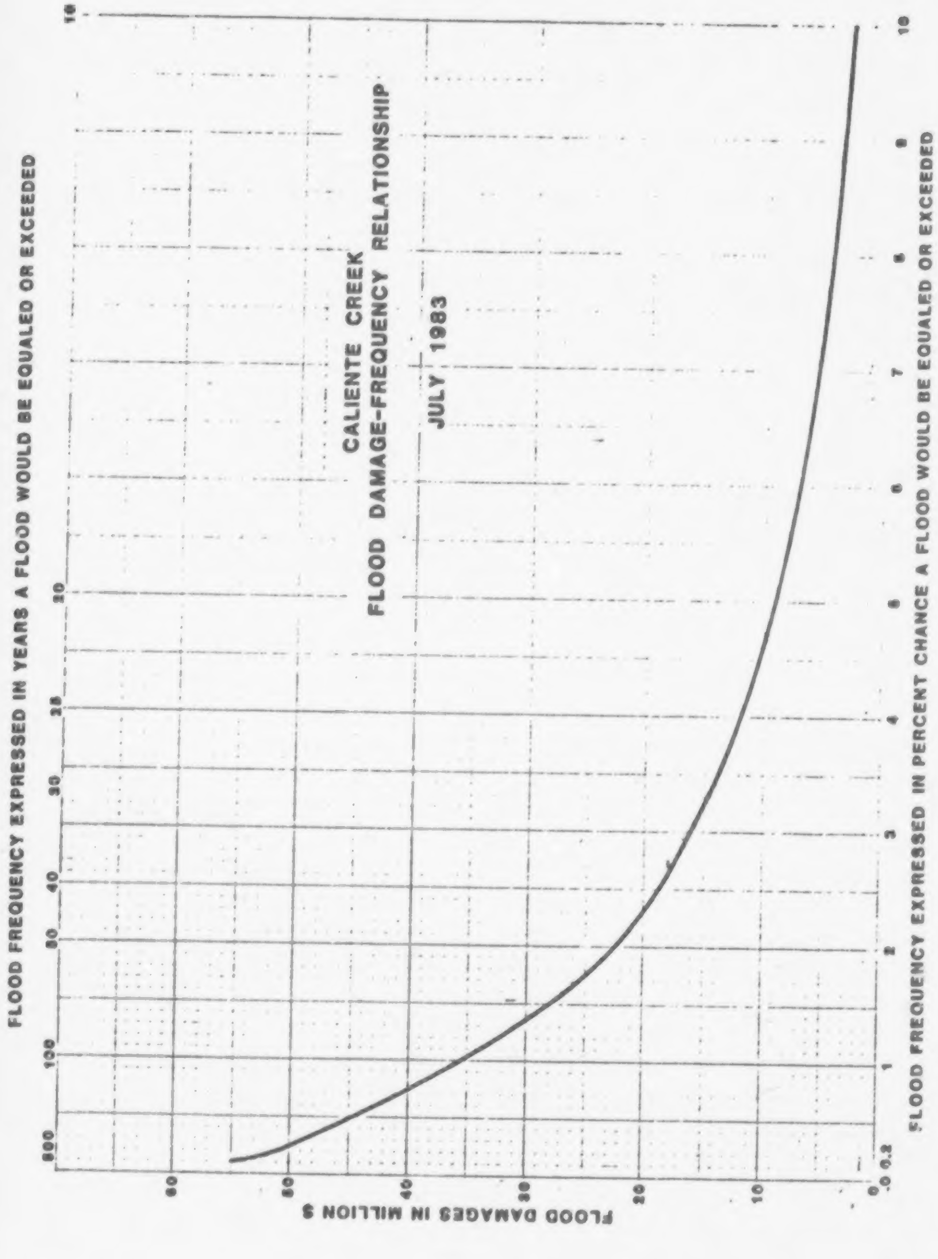
A) Determine the validity and accuracy of the random sample.

B) Extrapolate the random sample to the 1983 flood limits.

C) Change the damage-discharge and damage-frequency curves.

D) Calculate the revised average annual damages, benefits and new B/C ratio.

Prior to the 1983 flood, the Corps of Engineers had made a preliminary estimate of damages for a 35-year rain flood which totalled about 18.0 million. A rough extrapolation of the recent sample to the 1983 flood limits could result in about $25 million, an increase of $7 million. The March, 1983, flood is estimated to be a 37-year event.



CALIENTE CREEK
FLOOD DAMAGE-FREQUENCY RELATIONSHIP
JULY 1983

CALIENTE CREEK PROJECT PLANNING
ESTIMATED LOCAL EXPENDITURES

January 1983 to January 1984

Agency	Engineering[1] and Consulting	Flood Fighting Cleanup and Emergency Repairs	Total
Kern County Water Agency	$ 47,000	--	$ 47,000
Kern County Public Works	15,000	$1,620,000	1,635,000
Arvin Edison Water Storage District	--	340,000	340,000
Kern Delta Water District	--	86,000	86,000
	$ 62,000	$2,046,000	$2,108,000

(1) Engineering and consulting for project planning for solution to Caliente Creek flooding including cooperation with and assistance to U.S. Corps of Engineers, Sacramento District.

STATEMENT OF THE ARVIN-EDISON WATER STORAGE DISTRICT, CALIFORNIA

ARVIN-EDISON WATER STORAGE DISTRICT IS LOCATED IN THE SOUTHEASTERN CORNER OF THE SAN JOAQUIN VALLEY IN KERN COUNTY, CALIFORNIA. THE DISTRICT ENCOMPASSES 132,000 ACRES OF HIGHLY PRODUCTIVE AGRICULTURAL LANDS WHICH PRODUCE A WIDE VARIETY OF CROPS INCLUDING COTTON, POTATOES, GRAPES, CITRUS, DECIDUOUS FRUITS AND VEGETABLES. THE DISTRICT IS LOCATED ON AN ALLUVIAL FAN BORDERED BY MOUNTAINS ON THREE SIDES. SEVERAL INTERMITTENTLY ACTIVE STREAMS TRAVERSE THE DISTRICT WHICH, ON SEVERAL OCCASIONS, HAVE CAUSED FLOODING RESULTING IN SEVERE DAMAGE TO FARMLANDS AND DISTRICT FACILITIES.

THE STREAM WHICH HAS CAUSED THE MOST SEVERE DAMAGE TO DISTRICT FACILITIES AND FARMLANDS IS CALIENTE CREEK. CALIENTE CREEK FLOODING CAUSED MAJOR DAMAGE IN 1978 AND 1983 AND DAMAGE IN 1967, 1969 AND 1972. THE TOTAL COST OF REPAIRS TO DISTRICT FACILITIES BY THESE FIVE FLOODS IS APPROXIMATELY $3,700,000. THIS COST ESTIMATE DOES NOT REFLECT CROP LOSSES AND PROPERTY DAMAGE INCURRED BY THE AREA FARMERS AS A RESULT OF THE CALIENTE CREEK FLOODS.

THE DISTRICT RESPECTFULLY REQUESTS THAT THE FUNDS REQUESTED BY THE CORPS OF ENGINEERS NECESSARY TO CONTINUE THE CALIENTE CREEK STUDY BE INCLUDED IN THE FEDERAL BUDGET.

LOWER SAN JOAQUIN RIVER BASIN PROJECTS

STATEMENT OF JAMES SORENSEN, CONSULTANT, KAWEAH DELTA WATER CONSERVATION DISTRICT, NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT, AND FRIANT WATER USERS ASSOCIATION

Mr. DODSON. Next, on my left is Mr. James Sorensen, consultant for the Kaweah Delta Water Conservation District, the North San Joaquin Water Conservation District, and the Friant Water Users Association.

Mr. SORENSEN. Thank you, Mr. Chairman.

I would like to submit three statements, the first on behalf of Friant Water Users Association which is a group of 26 public districts who serve a million acres of land. We are supporting $2 million for clearing and snagging in the lower San Joaquin River from Friant Dam to the delta and this is a matter of just good housekeeping to take care of high close and low close at the same time.

Then for the Kaweah Delta Water Conservation District supporting the funding for the San Joaquin River basin comprehensive studies, particularly $130,000 for the Kaweah River watershed.

Finally, Mr. Shumway has earlier indicated support for Auburn-Folsom South unit and that the North San Joaquin Water Conservation District is in dire need of water. Some additional water can be made available now by extending the Folsom South Canal into our area. Completion of the Folsom South Canal is urgently needed.

Thank you very much.

Senator MATTINGLY. Thank you.

[The statements follow:]

STATEMENT OF JAMES F. SORENSEN, CONSULTING ENGINEER, VISALIA, CALIF., ON BEHALF OF THE FRIANT WATER USERS ASSOCIATION

Friant Water Users Association supports augmentation of the President's budget by $2 million for clearing and snagging along the lower San Joaquin River from Friant Dam to the delta and in the tributaries.

This association, comprising 26 public water and irrigation districts serving 1 million acres along the east side of the San Joaquin Valley in central California, believes that this work should be performed as soon as possible to reduce flooding hazards in the San Joaquin River system.

Particular attention is called to the situation between Friant Dam and Gravelly Ford and Mendota Dam. Little, if any, clearing work has been accomplished in these reaches for many years with a resultant heavy vegetative growth which restricts high flows from the San Joaquin River watershed when Friant Dam is not capable of storing or reducing in-flows.

The extreme variability of the river flows brings about a need for a program of continuing maintenance. Non-Federal assurances are being sought for assumption of such maintenance.

STATEMENT OF JAMES F. SORENSEN, CONSULTING ENGINEER, VISALIA, CALIF., ON BEHALF OF THE KAWEAH DELTA WATER CONSERVATION DISTRICT

Kaweah Delta Water Conservation District supports funding for San Joaquin River basin comprehensive studies which includes $130,000 for the Kaweah River watershed.

This 330,000-acre district located in Tulare County in the central part of California includes the cities of Visalia, Tulare, and Farmersville and many unincorporated communities along with over 300,000 acres of agricultural lands. Population and intensified land use are putting tremendous pressure on existing flood control systems which are now inadequate to meet flooding risks.

This river system needs to be studied for flood control as well as utilization for water conservation, ground water recharge, hydropower generation, recreation, and other water-oriented purposes.

The district urges appropriation of these funds so that the Kaweah River study can be gotten underway soon. Delays occasioned by commencement of other studies has been noted and it is respectfully requested that an immediate start be instituted through adequate funding to make up for lost time. The district is prepared to share in the responsibility for feasibility studies if this reconnaissance study shows a likelihood of development of practical solutions.

A supporting resolution and transmittal letter from Kaweah Delta Water Conservation District is attached.

STATEMENT OF JAMES F. SORENSEN, CONSULTING ENGINEER, VISALIA, CALIF., ON BEHALF OF THE NORTH SAN JOAQUIN WATER CONSERVATION DISTRICT

North San Joaquin Water Conservation District respectfully requests augmentation of the Federal budget by $1,750,000, up to $5,250,000, for the Auburn-Folsom South Unit of the Central Valley Project.

The city of Lodi (present population over 50,000 and rapidly increasing) and over 50,000 acres of agricultural lands need water which can be made available by extending the existing partially completed Folsom South Canal into San Joaquin County from Clay Station where it now ends.

The district has long sought supplemental surface water from outside sources but this has been prevented because of the lack of completion of Folsom South Canal. Nearly $1 million of local funds have been used to build interim facilities to serve a small portion of the district. These facilities divert temporary water from sources which are subject to higher priority rights and which are now diminishing. It has been estimated that even these partial interim supplies will no longer be available within a very few years.

Ground water levels continue to fall in areas of the district where there is no surface water available or there is insufficient ground water recharge, particularly in normal or below normal rainfall years.

In the southern part of the district, ground water quality is deteriorating and the logical solution to this critical problem lies in the delivery through a completed Folsom South Canal of supplemental water from the American River.

Your help in funding completion of Folsom South Canal is urgently solicited.

SAN JOAQUIN VALLEY CONVEYANCE STUDY

STATEMENT OF GEORGE McKEAN, CHAIRMAN, MID-VALLEY WATER AUTHORITY

ACCOMPANIED BY:

RICHARD SCHAFER

ROGER ROBB

JEFF L. TAYLOR, TECHNICAL ADVISORY COMMITTEE

Mr. DODSON. Next, Mr. George McKean, chairman of the Mid-Valley Water Authority.

Mr. MCKEAN. Mr. Chairman, my name is George McKean and I am chairman of the board of directors for the Mid-Valley Water Authority. I am appearing on behalf of the authority in support of the Bureau of Reclamation's San Joaquin Valley conveyance study.

My written statement has been submitted and in order to save the committee's time, I ask that it be included as part of the hearing record.

We request that the Federal funding be included in the budget for 1984, 1985 fiscal year in the amount of $357,000 as provided in the President's proposed budget for a feasibility study of alternate conveyance facilities for delivery of CVP water to the service area of the Mid-Valley Water Authority.

Thank you for the privilege of speaking before you.

Senator MATTINGLY. Thank you.

[The statement follows:]

STATEMENT OF GEORGE D. MCKEAN, CHAIRMAN OF THE BOARD OF DIRECTORS, MID-VALLEY WATER AUTHORITY

My name is George D. McKean and I am Chairman of the Board of Directors of the Mid-Valley Water Authority. I am appearing today in support of the U.S. Bureau of Reclamation's Feasibility Investigation line item entitled San Joaquin Valley Conveyance Study with a 1984-85 budgeted allocation of $357,000.

SUMMARY

The Mid-Valley Water Authority (MVWA), a Joint Exercise of Powers Agency, consisting of 29 public agencies in six counties of the San Joaquin Valley, California, was formed December 3, 1982. The service area of the MVWA covers approximately 3.4 million acres of irrigated agriculture, and has a long-term groundwater overdraft of 1.5 million acre-feet per year.

The Bureau of Reclamation has identified unallocated firm CVP water as a result of the Coordinated Operations Agreement with the State Department of Water Resources (DWR), operations of the Trinity River, interim CVP water available from non-use of allocations under existing contracts, and additional surplus CVP water of approximately 1.2 million acre-feet per year which will be subject to contractual negotiations with the MVWA upon the removal of the moritorium, as imposed by former Secretary of Interior Andrus, of further contracts for delivery of water from the Delta.

The purpose of the San Joaquin Valley Conveyance study is to formulate a plan by which the additional CVP water supplies may be imported to the San Joaquin Valley to provide relief from existing conditions of ground-water overdraft. Information to be obtained as a part of the Enlarged Shasta Lake Investigation will be used to estimate the amount of supplemental water supplies needed which cannot be provided from firm ground-water yields and existing surface-water developments and/or delivered by present conveyance facilities. The study information will be used to formulate alternative plans which include utilization of existing water supplies and conveyance facilities to meet as much of the supplemental water requirements as is possible and the means by which future developed supplies can be delivered to the areas of need.

ORGANIZATION

The Mid-Valley Water Authority was organized under the Joint Exercise of Powers Act, Articles I and II of Chapter 5 of Division 7, Title 1 of the Government Code of the State of California (Section 6500 et seq.) on December 3, 1982. The public districts, which are members of the MVWA and their percentage of participation therein, are set forth in Table 1. Each of the 29 public agencies is represented by a director and alternate on the Board of Directors and on an Advisory Committee. The MVWA was organized as an institutional device for the continuation and coordination of the various efforts that have been independently pursued by the member agencies to secure a supplemental water supply and the construction of a conveyance facility for the delivery of the supplemental water supply to the MVWA service area.

SERVICE AREA

The MVWA includes a service area of approximately 3.4 million acres of irrigated agricultural lands. The boundary of the MVWA extends from the Merced County line on the north to the southerly boundary of the Arvin-Edison Water Storage District on the south, and generally from the Sierra foothills to the trough of the San Joaquin Valley.

Lands within the Counties of Madera, Merced, Fresno, Kings, Tulare and Kern are of membership in the MVWA. A map of the MVWA service area is included as Plate 1.

HISTORY

The lands included within the Mid-Valley Water Authority are, for the most part, lands which are presently under cultivation and indeed, these areas were some of the earliest extensively irrigated lands in the State.[1] While the service area of the Mid-Valley Water Authority was included within the planning for the integrated operation of the Central Valley Project, the construction of a delivery facility (Mid-Valley Canal) has not been accomplished. Studies for the development of the East Side Division of the Central Valley Project proceeded through the late 1950's and early 1960's and a proposed feasibility report for the East Side Division, Initial Phase, was sent to the Secretary of the Interior in 1968.[2] As the overall imbalance between the available water supplies and the consumptive demands became more and more apparent, the member agencies independently persisted in their efforts to urge the federal and state governments to proceed with the development of a delivery capability for the Central Valley Project waters that were and are available in the Delta to the area now included within the Mid-Valley Water Authority. As a result of these efforts, the State Department of Water Resources and the U.S. Bureau of Reclamation jointly studied the construction of a Mid-Valley Canal which would incorporate features of the State Water Project and the Delta Mendota Canal of the CVP. Those studies culminated in the publication of a report entitled "Mid-Valley Canal, East Side Division, Central Valley Project, California, 'A report on the Mid-Valley Canal Feasibility Investigation' U.S. Department of the Interior". (January, 1981). The Report contained an extensive consideration of the needs within the proposed service area and the hydrologic, environmental and economic considerations of constructing the proposed facility as a federal facility. In conjunction with that report, tentative allocations of the available CVP water supply were made among the various agencies that were seeking to participate, those allocations being predicted upon criteria developed by the Bureau of Reclamation.

When the study for the Mid-Valley Canal was commenced, the Bureau of Reclamation had identified a firm annual water supply in the Delta of approximately 500,000 acre-feet as available for export to the proposed service area. Before the report could be completed, the Bureau of Reclamation revised its estimations of the marketable CVP yield in light of Delta water quality considerations.[3] In view of these revised yield calculations, the report proposed that there be no federal action for Congressional authorization of the Mid-Valley Canal until a firm water supply is available. The report does conclude, however, that the Mid-Valley Canal service area should be considered as an area to utilize any additional yield originating from existing CVP facilities.

While the Mid-Valley Canal that was the subject of the aforesaid feasibility investigation has not been authorized for construction, the residents and public agencies within its projected service area have proceeded with the formation of the Mid-Valley Water Authority to promote its purposes. The geographic configuration of this authority as well as the participation percentages of the various member agencies were developed in substantial reliance upon the service area and allocation criteria used by the Bureau of Reclamation in its feasibility study. The Authority was organized to continue the search for a reliable water supply for the east side of the San Joaquin Valley.

The lands included within the Mid-Valley Water Authority are among the most severely overdrafted agricultural lands in the State. The Mid-Valley Canal feasibility investigation identified an estimated 1.5 million acre-feet annual groundwater overdraft.

The California State Department of Water Resources in Bulletin 118-80, identified eight basins as being subject to critical conditions of overdraft in the San Joaquin hydrologic study area. Seven of those basins, the Chowchilla, Madera, Kings, Kaweah, Tulare Lake, Tule and Kern County basins essentially make up the service area of the present Mid-Valley Water Authority. Those basins were identified by DWR as having a long-term annual overdraft of 1,339,000 acre-feet.

In identifying the needs within the Mid-Valley Canal service area, the U.S. Bureau of Reclamation concluded that the local surface supplies have been almost completely utilized and cannot realistically meet the demand. In addition, the report notes that overall basin irrigation efficiency is very high and conservation gains would likewise be of no consequence toward correcting the overdraft. The Mid-Valley feasibility report concluded in pertinent part as follows:

> "A replacement water supply for the Mid-Valley Canal general service area is urgently needed. The present annual groundwater overdraft of over 1 million acre-feet forecasts the abandonment of over 440,000 acres of highly productive irrigated agricultural lands within the foreseeable future unless a replacement supply can be imported."

Under the Coordinated Operations Agreement (COA) being developed between the U.S. Bureau of Reclamation and the California State Department of Water Resources, a remaining uncommitted CVP yield was identified in the amount of 1.1 million acre-feet per year. Additional CVP water is also anticipated to be available from the modified Trinity River operations and on an interim basis (interim water is defined as existing firm yield under contract but not as yet used).

The MVWA is further supporting the construction of the Auburn Dam project, intends to become a cost sharing participant and a recipient of a portion of the project yield.

Thus, with an appropriate conveyance facility, the MVWA would be capable of importing nearly 1-million acre-feet of additional supplemental water supply to the MVWA service area.

PURPOSE

The Bureau of Reclamation and the MVWA entered into a "Letter of Intent for the Funding and Conduct of Studies to Resolve Groundwater Overdraft and Meet the Water Needs in the San Joaquin Valley" and an "Agreement Between the United States of America and Mid-Valley Water Authority Providing for the Funding of Certain Studies Pertinent to the Provision of Supplemental Water Supplies for the San Joaquin Valley" in November 1983 for determining the most feasible method of importing additional surface water supplies needed to offset the groundwater overdraft within the MVWA service area. The MVWA is cost-sharing the studies by contributing $25,000 and by providing in-kind services. The Bureau, State, DWR and the MVWA are initially jointly studying the capability of all existing facilities for delivery of additional CVP water within the MVWA service area.

The San Joaquin Valley Conveyance Study will further evaluate potential canals and necessary pumping plants along alternative conveyance routes, consider the integration of off-stream water conservation storage reservoirs of various sizes, and evaluate other facilities needed to resolve the groundwater overdraft and related problems in the service area, including drainage, erosion and sedimentation, flooding and fish and wildlife deterioration.

It is anticipated the Bureau of Reclamation costs for their portion of the cost-sharing feasibility study will be 1.1 million dollars and an allocation within the 1984-85 budget of $357,000 is required to commence the Conveyance Study.

I appreciate the privilege of appearing before the Committee and respectively urge your support and ask that my statement be made a part of the hearing record.

[1] Central Valley Project Documents Part 1, Authorizing Documents, 84th Congress 2nd Session House Document #416 (1956) Intro. pp 1-16.

[2] East Side Division, Initial Phase, Central Valley Project California "A Report on the Feasibility of Water Supply Development". U.S. Department of the Interior, Bureau of Reclamation (December 1965 Rev. June 1966).

[3] Mid-Valley Canal Feasibility Study, p. 66.

TABLE 1

MEMBERSHIP COMPOSITION OF MID VALLEY WATER AUTHORITY

Member Agency	Participation %
Alpaugh Irrigation District	1.44
Alta Irrigation District	1.84
Atwell Island Water District	1.23
Chowchilla Water District	0.62
City of Corcoran	0.62
Clayton Water District	0.62
Consolidated Irrigation District	3.27
County of Fresno	7.15
Fresno Irrigation District	2.05
Gravelly Ford Water District	0.52
City of Hanford	1.44
James Irrigation District	0.92
Kaweah Delta Water Conservation District	7.15
Kern County Water Agency	7.15
County of Kings	4.09
Kings County Water District	7.15
Kings River Conservation District	7.15
Labranza Water District	1.23
Lakeside Irrigation Water District	1.84
Liberty Water District	1.23
Lower Tule River Irrigation District	4.09
County of Madera	7.15
Madera Irrigation District	3.27
Pixley Irrigation District	7.15
Raisin City Water District	7.15
Saucelito Irrigation District	1.44
Sierra Water District	2.25
County of Tulare	7.15
Tulare Irrigation District	1.64
	100.00

RED BANK AND FANCHER CREEK, CALIF.

STATEMENT OF JACK LANSMAN, DIRECTOR, FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

ACCOMPANIED BY DOUGLAS HARRISON, MANAGER

Mr. DODSON. Next is Mr. Jack Lansman, director of the Fresno Metropolitan Flood Control District.

Mr. LANSMAN. Mr. Chairman, my name is Jack Lansman and I am the chairman of the board of directors of the Fresno Metropolitan Flood Control District. I am also authorized to speak for the president of the irrigation district, the county of Fresno, the city of Fresno, and the city of Clovis.

We appreciate the committee's continuing support for the Redbank and Fancher Creeks flood control project and request the appropriation of the $900,000 allocated in the President's budget.

We thank the committee and ask that our complete presentation be made a part of the hearing record.

Senator MATTINGLY. Thank you.

[The statement follows:]

STATEMENT OF JACK LANSMAN, CHAIRMAN OF THE BOARD OF DIRECTORS, FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

My name is Jack Lansman and I am Chairman of the Board of Directors of the Fresno Metropolitan Flood Control District of Fresno County, California, the local sponsor for the Redbank-Fancher Creeks Flood Control Project which is a modification to the previously authorized Fresno County Streams, California project. I am also authorized to speak on behalf of the County of Fresno, the Cities of Fresno and Clovis, and the Fresno Irrigation District.

We respectfully request that continued construction design be included in the budget for the 1984-85 fiscal period in an amount not less thatn the $ 900,000 currently provided in the President's proposed budget.

The Redbank-Fancher Creeks project was initially identified in the Big Dry Creek project investigation of 1940 and the resulting Fresno County Streams project authorization. In 1956, the Congress specifically authorized the investigation of the project modification relating to the Redbank-Fancher Creeks stream system. Unfortunately, federal funds for the investigation were not appropriated until Fresno County was declared a part of the 1969 California disaster area. The completed investigation proves the project to be both economically justified and environmentally sound.

Noteworthy, is the fact that the Redbank-Fancher Creeks project is one which is economically justified on the basis of flood damage prevention alone. Though other benefits accrue, they are not required to produce a positive benefit/cost ratio. When constructed, the project will provide protection to 57,000 acres containing a population in excess of 120,000 at a benefit/cost ratio of 1.3 to 1.0 at an 8-1/8% interest rate. Total estimated average annual flood damages exceed $11,000,000 and affect both urban and agricultural properties. The proposed works will also protect an open irrigation canal system which transverses 210,000 acres of the world's most productive agricultural lands, Fresno County's gross production exceeding 1.8 billion dollars in 1982. The project will control the historic flooding which has seen the stream and canal systems overtop their banks an average of once every four years since 1953.

In July 1980, the completed investigation report was forwarded to the Chief of the Corps of Engineers. The report was subsequently forwarded to the Secretary of the Army for transmission to Congress. The project has been included in authorization legislation passing the House of Representatives during two recent sessions of the Congress. Though not enacted, the specially worded authorization reflected the awareness of the Congress of the project's special needs. The project is now included within Senate Bill 1739 and H.R. 3678 authorizing project construction. Congressional action effecting the requested appropriations is critical in that it will prevent additional delay, saving an estimated twenty percent in increased project costs.

We appreciate the privilege of appearing before the Committee and the past support it has given the project. We respectfully urge your continued support and ask that our statements be made a part of the hearing record.

The people of the central county area of Fresno County, California are deeply apreciative of the opportunity to have the presentations of their representatives heard by the honored members of the Congress. While the Redbank-Fancher Creeks Flood Control Project is not large by some standards, it is critically important to the Fresno-Clovis metropolitan area which is the business center of the most productive agricultural county in the world, gross production exceeding 1.8 billion dollars in 1982.

This report, first submitted in May 1971, has been prepared to substantiate and support the vital need for flood control works on Redbank and Fancher Creeks.

AUTHORIZATION:

The Redbank-Fancher Creeks project is a modification of the existing Fresno County Streams, California authorization incorporating the enlargement of the Big Dry Creek Dam and Reservoir and the containment of the balance of the stream group.

The Congress, on June 13, 1956, authorized the Corps of Engineers to reinvestigate the stream group project, this following the major floods of 1955 and 1956. Unfortunately, funds were not provided and the Corps did not begin the investigation until the area had suffered its worst flooding in history during January and February 1969. The release of funds and the start of the investigation occurred in July 1970, some fourteen years after Congressional authorization. Unfortunately, the floods of 1983 find the final authorization still pending.

PROJECT LOCATION AND NEED:

Redbank and Fancher Creeks of the Fresno County Stream Group, their tributaries and related streams addressed by the proposed project, are located on the western slope of the Sierra Nevada mountains. The watershed encompasses some seventy-five square miles and generates storm runoff which flows through the heart of the metropolitan area. The flows impact directly on the open irrigation canal system which transverses some 210,000 acres of the world's most productive agricultural land and 45,000 acres of a densely developed urban community with a population in excess of 350,000.

It is currently estimated that the floodplain to be protected by the proposed project includes 57,000 acres with a population of 120,000 (1982) and a market value in excess of 2.4 billion dollars. Total estimated average annual flood damages exceed $11,000,000 and affect both urban and agricultural properties.

HISTORY OF FLOODING:

As a result of the uncontrolled nature of the subject stream group, flooding has occurred frequently. Floods of record occurred in March 1938, December 1955, January 1956, January 1969, February 1969, March 1978, and January 1983. In addition, available records indicate flooding of lesser severity occurred in 1952, 1958, 1965, 1972, and 1977 with the streams and irrigation canal system overtopping their banks on the average of once every four years since 1953.

Although the recent floods which occurred in March 1978 and January 1983 were of a lesser magnitude than those of 1969, thousands of dollars in damages to private homes, public roads, irrigation facilities and hundreds of acres of prime agricultural lands were experienced. Such floods again demonstrated the urgent need for immediate construction of flood control works.

LOCAL SUPPORT:

Following the floods which occurred in January and February 1969, the Fresno area was declared a part of California's disaster area. With the realization that millions of dollars in flood damages could have been prevented and that a recurrence of such floods would be even more devastating, a public hearing on the subject needed flood control works was held on February 28, 1969. Hundreds of the community's citizens representing some seventy-five public and private organizations met and drafted resolutions to the U.S. Army Corps of Engineers and legislative representatives urging the active pursuit of Redbank-Fancher Creeks Flood Control Project. Subsequently, the County of Fresno, the Cities of Fresno and Clovis, the Fresno Metropolitan Flood Control District, and the Fresno Irrigation District, authorized direct work with the Corps of Engineers and the Congress to secure adequate flood protection for the Fresno-Clovis metropolitan area.

In an effort to ensure the availability of lands needed for the required flood control structures, the County of Fresno acting jointly with the Fresno Metropolitan Flood Control District did, on October 22, 1974, effect open-space and conservation zoning of approximately 500 acres. More recently, the Cities of Clovis and Fresno, the County of Fresno, and the Fresno Metropolitan Flood Control District, signed contracts appropriating $335,000 per year to acquire the necessary project lands.

Relatedly, the California Water Commission has historically supported and continues to support the project. Further, the State Reclamation Board has submitted a supporting letter of intent for local assurances.

Most recently, a broadly based Citizens Project Advisory Committee has been created by the Flood Control District. The Committee and the sixteen community organizations and agencies it represents have reviewed and confirmed the project's need and design features. The Committee has also structured a financing plan to ensure the availability of the required local cost share and the equitable distribution of those costs.

ENVIRONMENTAL CONSIDERATIONS:

Upon completion and distribution of the Draft Feasibility Report and Draft Environmental Impact Statement, a public hearing was held within the project area by the Fresno Metropolitan Flood Control District, the local project sponsor, and the U.S. Army Corps of Engineers. Testimony submitted during the subject hearing indicated that there are no areas of controversy associated with the project or its limited environmental impact. In summary, the testimony received confirmed the accuracy of the Draft Environmental Impact Statement in identifying only limited impacts and the adequacy of the proposed mitigation measures. It was also apparent that any adverse environmental impact which might be associated with the project during the brief construction period would be of a temporary nature and insignificant when compared with the permanent environmental and social benefits which would be derived.

PROJECT FEASIBILITY AND FINANCING:
The complete report, supplemented by additional detailed studies, substantiates the need for the proposed project and identifies strong economic justification. The project costs and benefits reflected by the original report are as follows:

(Total First Costs: (1983)	$ 81,300,000	
Average Annual Costs (8-1/8% Interest)		$ 7,810,000
Total Average Annual Benefits:		
Flood Control	$ 7,132,000	
Flood Proofing Cost Reduction	424,000	
Recreation	934,000	
Total Average Annual Benefits		$ 8,490,000

However, during the project's construction design, changes approved by the local sponsor have modified the estimated project costs and benefit totals as reflected below.

Total First Costs	$ 73,300,000	
Average Annual Costs (8-1/8% interest)		$ 6,179,000
Total Average Annual Benefits:		
Flood Control	$ 6,606,000	
Flood Proofing Cost Reductions	393,000	
Recreation	865,000	
Total Average Annual Benefits		$ 7,864,000

Benefit/Cost Ratio 1.3 to 1.0

Noteworthy, is the fact that the project is economically justified on the basis of flood damage reduction benefits. alone. While other benefits are cited, they are not needed to produce a positive benefit/cost ratio. It should be noted that, while not included in the actual benefit calculations, the proposed project will also create significant beneficial effects in the areas of water conservation, groundwater management and wildlife enhancement.

The anticipated distribution of the project costs (based on traditional cost-sharing) among the Federal Government, the State of California, and the local sponsor is as follows:

Federal Government	$ 57,540,500
State of California	11,801.300
Fresno Metropolitan Flood Control District (Plus Annual O & M @ $230,000)	3,958,200
Total Project Cost	$ 73,300,000

PROJECT STATUS REVIEW:
Review of the completed project report by the Division Engineer resulted in his concurrence with the investigative conclusions of the District Engineer.

Upon completion of the Division Engineer's review, additional study was undertaken at the request of the Board of Engineers, that additional study similar to that normally performed during the Phase I study which follows project authorization. Unfortunately, the additional study delayed the project approximately two years causing an estimated seventeen percent increase in the project costs.

During July 1980, the Board of Engineers of Rivers and Harbors forwarded to the Chief of The Corps of Engineers the completed project report and environmental impact report. The report was subsequently forwarded to the Secretary of the Army for transmission to the Congress.

The project has been included in legislation passing the House of Representatives during two recent sessions of the Congress. Thought not enacted, the specially worded legislation reflected the awareness of the Congress of the special needs associated with this project. As a result of these factors, the project has been approved for continued engineering and design and is now completing the second year of such engineering work. The requested appropriation will fund the third, and next-to-last, year of project construction design.

The project is included in the pending water resources development legislation (S. 1739 and H.R. 3678), providing for final construction authorization. Timely action by the Congress effecting the necessary authorizations and appropriations will save as much as an additional two-year delay in the project, thereby saving the taxpayers further significant increases in project costs.

CONCLUSION: REQUEST FOR AUTHORIZATION

On June 13, 1983, twenty-seven years had elapsed since Congress first authorized the proposed Redbank-Fancher Creeks Flood Control Project modification to the Fresno County Streams Project. The need for the project has been identified in a total of eight different studies and investigations performed at both the local and federal levels. The project feasibility investigation completed in July 1977 confirms the project need and identifies strong economic justification for project construction. Further, the more advanced and detailed technical analysis performed for the Board of Engineers has confirmed the previous recommendations of the Corps of Engineers.

Because it is our belief that the proposed Redbank-Fancher Creeks Flood Control Project has met all requirements for federal participation and meets all current standards of economic justification and environmental protection, we most respectfully urge the favorable action of the Committee and the Congress in authorizing the Redbank-Fahcner Creeks Flood Control Project Funding.

Los Angeles County Drainage Area Study

STATEMENT OF JAMES L. EASTON, ACTING CHIEF ENGINEER, LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

Mr. Dodson. Next, I would like to introduce Mr. James Easton, acting chief engineer for the Los Angeles County Flood Control District.

Senator Mattingly. Welcome, Mr. Easton.

Mr. Easton. Mr. Chairman, several years ago the U.S. Corps of Engineers began a study on the adequacy of the existing flood control facilities in the Los Angeles County Flood Control District. The preliminary results of that study, and also our showing of storms for the last 6 years, has led us to conclude that the Los Angeles River, and perhaps other elements of that system, are significantly and substantially undersize. Since these facilities protect the major portion of the Los Angeles basin area, we are most anxious that the Corps of Engineers finish that study as soon as possible.

We therefore strongly recommend your consideration for adding $400,000 to the amount recommended in the President's budget to keep the Los Angeles County drainage area study moving along so that we can fully define that problem and get on with solving it.

Thank you very much.

Senator Mattingly. Thank you.

[The statement follows:]

Statement of James L. Easton, Acting Chief Engineer, Los Angeles County Flood Control District, California

Summary of recommendations by Los Angeles County Flood Control District concerning the President's budget allocations to the U.S. Army Corps of Engineers:

1. *Rehabilitation.*—Support the $10 million recommended Presidential budget allocation to the Corps to rehabilitate critical areas of the Los Angeles County flood control system for which it is responsible.
2. *Los Angeles County drainage area (LACDA) review.*—Support the California Water Commission recommendation for an increase in the President's budget allocation from $450,000 to $850,000 for the LACDA review.
3. *Antelope Valley study.*—Support the President's budget and the California Water Commission recommendation for a $140,000 allocation for this study.

Mr. Chairman and gentlemen, during the past year, southern California has experienced a very unusual situation with almost no measurable precipitation from Christmas to today. The normal condition at this juncture would have been a series of storms over the past several months requiring flood-fighting efforts by the district.

The brief hiatus in the normal weather has allowed the Los Angeles County Flood Control District the opportunity to concentrate our resources in planning for a massive effort this summer to accomplish substantial major channel rehabilitation work. The Corps needs to continue the efforts begun in fiscal year 1984 toward its major rehabilitation program.

A portion of the $10 million rehabilitation allocation will be used to repair damages in those portions of the LACDA system operated and maintained by the Corps' Los Angeles District. We urge allocation of funds to support this vitally necessary and ongoing responsibility.

We believe efforts must continue to insure residents of Los Angeles County the best practicable protection, whether by means of flood control structures or by means of flood plain management. Toward this goal, we request that your committee support the California Water Commission recommendtions for the continuation of a major planning study previously supported by your committee. This study is known as the LACDA review. This is a review of the adequacy of the existing flood control system protecting metropolitan Los Angeles. Portions of this system, based on design criteria developed in the 1930's, are known to be inadequate in the light of the tremendous growth of our county since that time. It is imperative that the problems identified during past storms be corrected so that residents and businesses may be protected from the threat of flood disaster. Of particular concern are the Los Angeles River, Tujunga Wash, and Arroyo Seco systems.

The Los Angeles River is old and in need of repair. During the storms of February through March 1983, the integrity of certain sections of levee in the Long Beach area was of great concern to the county due to the high channel flows necessitated by dam releases. Structural failure of two sections did occur and required emergency repairs. Those sections were replaced with new permanent levees this past summer. Urgently needed major maintenance and repair projects are required to restore the Corps' system in order to reduce the possibility of future failures.

Within the Arroyo Seco system, Devil's Gate Dam and the Arroyo Seco Channel are both old and deficient by modern standards. The review of this and all of the elements of the LACDA system to clearly establish current capability and identify the need and cost of necessary remedial work is urgently needed.

In the Antelope Valley, the planned improvement of Palmdale International Airport and continued pressure for housing will accelerate development in this area of the county. There is a definite need to assure the coordinated growth of the valley by a well-conceived flood control master plan. Local residents are pursuing the need for flood control and investigating methods of financing these needs. The Corps' study will provide a guide to assist the local area in its efforts. Completion of the Corps' Antelope Valley study is critical to asure the future safety of this community.

STATEMENT OF SHEILA LODGE, MAYOR, SANTA BARBARA, CALIF.

Mr. DODSON. Next it is a pleasure to introduce Mayor Sheila Lodge of the city of Santa Barbara.

Mayor LODGE. Thank you.

I am not only representing the city of Santa Barbara today, but the County of Santa Barbara as well in urging approval of the continuation of the Santa Barbara County stream and the Goleta and vicinity flood control surveys. The Santa Barbara study is responding to the concerns that have been discussed for at least 75 years, if not longer. This is also an integral part of the proposed improvements to our harbor which I discussed earlier under the navigation portion of this agenda.

The second project that I am urging support for is continuation of the Goleta study, another type of project that is necessary for our area.

Thank you very much.

Senator MATTINGLY. Thank you.

[The statements follow:]

STATEMENT OF SHEILA LODGE, MAYOR, SANTA BARBARA, CALIF.

Santa Barbara Harbor has been subject to sand shoaling since its beginning in the 1920's. The harbor has been dredged annually to remove 350,000 cubic yards of sand buildup under the authority of the Army Corps of Engineers.

The Corps has always had statutory responsibility for dredging and, in 1981 expended $743,000 for channel dredging. A somewhat larger sum was appropriated for 1982-83 and $1,100,000 was appropriated in 1983-84. The Corps has indicated a $1,000,000 capability for this maintenance project in fiscal year 1985. The President's budget, however, contains no requested appropriations for Santa Barbara Harbor dredging. For the first time in decades dredging may not be necessary during much of the remainder of 1984. The lack of channel shoaling is a direct result of the severe winter storms of 1983 which closed the harbor and severely eroded the beaches. However, normal patterns of sand accretion are returning and dredging needs will continue (Appendix A).

Entrance channel dredging is vital to the harbor which shelters over 1000 boats, 15% of which are commercial, year round. Santa Barbara Harbor provides the only shelter for vessels from Port San Luis to Ventura Harbor, a distance of 120 miles of rough water and rocky coastline (Appendix A_1). Twenty-two hundred visiting boats, a majority of which are commercial, use the harbor on an annual basis. Commercial fishing boats working out of Santa Barbara land over 12,000 tons of fish annually. The fishing industry, employing over 600 persons locally, has the largest gill netting fleet in Southern California. In 1981, 9,300 tons of sea urchins were landed commercially in Santa Barbara. This comprised over 65% of all sea urchins landed in California and made Santa Barbara the largest sea urchin port in the world. Ninety percent of the product is exported to Japan, making a positive impact on the nation's trade deficit. Additionally, 700 jobs in Ventura and Los Angeles counties are dependent on this industry (Appendix B).

The harbor is a vital part of the local economy. In addition to commercial fishing, 300 jobs are involved in harbor and marine dependent businesses. This figure does not include persons in the tourist related industry (Appendix C).

Without dredging, the harbor would be closed to navigation within one year. Those businesses relying on the harbor would be severely impacted and the fishing industry closed. This would impact federal, state, and local tax revenues. Beaches to the east and south of the harbor would suffer erosion if the sand causing the shoaling was no longer sent down coast through dredging (Appendix D). The loss to the local economy would be over $44 million.

Closure of the harbor would mean that commercial fishing vessels would have to move to harbors further from active fishing grounds. The added distance would double annual fuel consumption to a minimum of 1.5 million gallons. Marine construction and oil service vessels, the oil spill containment vessel, the Coast Guard cutter and the Navy's defense research vessel similarly would have to locate further from the area they serve. Response time to marine emergencies and oil spills would be doubled (Appendix F).

The harbor is vital locally, state-wide, and nationally. Acknowledging this need and seeking long-term solutions to dredging and storm protection problems, the City, in a completely local effort, has established a harbor preservation fund to aid in paying for future planning and improvements. Still, at this time, the harbor must be dredged annually to ensure its existence. The City urges that the $1,000,000 capability of the Army Corps of Engineers be included in the 1985 budget.

IMPACTS OF TWO MONTHS CLOSURE OF SANTA BARBARA HARBOR

The storms which ravaged the California coastline from January 24, 1983 through March 4, 1983 succeeded in shoaling in the Harbor entrance completely. On January 25, 1983, City Council declared a State of Emergency with the harbor channel at a depth of four feet. On February 21, 1983, four months later than the normal dredging schedule, the Army Corps of Engineers authorized emergency dredging. The harbor at that time was totally landlocked. By March 26, 1983, vessels were again able to navigate the channel.

The following is a summary of the impacts of this two-month closure of the harbor:

I. COMMERCIAL FISHING		
Total Loss of Income for Fish Landed or Processed Locally		$400,000
Total urchins unloaded totaled 79 tons as compared with 1500 tons normally unloaded during the same time period. Buyers were forced to go to other ports and may not return to Santa Barbara to do their buying.		
II. HARBOR AND MARINE BUSINESSES DEPENDENT ON FISHING		
Fuel Dock	$300,000	
Chandleries	34,000	
Loss of Income		334,000
III. OTHER HARBOR AND MARINE DEPENDENT BUSINESSES		
Sportfishing	148,000	
Boat Rentals	15,000	
Loss of Income		163,000
TOTAL LOSS OF INCOME		$897,000

In addition to the above loss of income to various commercial enterprises, the State of California Employment Office reported that 328 claims were filed from February 22, 1983 to March 30, 1983 from commercial fishing crews and other harbor area employees laid off because of the harbor closure. The actual number of employees laid off may be greater due to the transient nature of fishing boat crews. The local urchin processing plants cut their work force by 70% during the height of the season when vessels could not leave the harbor.

Other impacts which have been experienced during the time the harbor was closed are as follows:

1. As foreseen in the March 25, 1982 paper, the Coast Guard Cutter Point Judith did leave the Santa Barbara Harbor before the channel became too shallow and returned on March 30, 1983.

2. Harbor closure also necessitated the removal of the oil containment vessel and the Navy defense vessel from the harbor.

3. Fishing vessels which were out of the harbor fishing during the period that the channel completely sanded in were locked out ot the harbor and forced to berth in Southern California harbors. These fishermen were paying slip fees to two harbors and by being in Southern California, were not close enough to fish local waters.

RESOLUTION NO._________

A RESOLUTION OF THE COUNCIL OF THE CITY OF SANTA BARBARA REQUESTING THE CONTINUED FUNDING OF DREDGING OPERATIONS BY THE UNITED STATES ARMY CORPS OF ENGINEERS FOR SANTA BARBARA HARBOR

WHEREAS, Santa Barbara Harbor has been subject to sand shoaling since inception in the 1920's and must be dredged annually to remove up to 350,000 cubic yards of sand build-up in order to maintain a navigable harbor entrance; and

WHEREAS, the harbor provides permanent berthing for over 1,000 boats of which 15 percent are commercial, a Coast Guard cutter and a defense research ship; and

WHEREAS, the harbor provides refuge to over 1,100 visiting boats in a six month period; and

WHEREAS, the harbor is a vital part of the local economy supporting the employment of 900 persons; and

WHEREAS, the Santa Barbara harbor is a regional harbor serving a far larger public than the City or County of Santa Barbara; and

WHEREAS, the United States Army Corps of Engineers has historically exercised the responsibility for harbor dredging; and

WHEREAS, without dredging, the harbor would close to navigation as experienced in 1983 causing economic hardship and threatening the safety of mariners;

NOW, THEREFORE BE IT RESOLVED that the Council of the City of Santa Barbara urges the President and the Congress to appropriate the necessary funds for the continued annual dredging of Santa Barbara Harbor by the U S Army Corps of Engineers.

APPENDIX A

BACKGROUND

Santa Barbara Harbor is located between Port San Luis, 100 miles to the north, and Ventura Harbor, 20 miles to the south.

In this key geographical location, the harbor provides shelter to over 1000 boats year round. The vessels range in size from less than 25 feet to over 130 feet and the average boat size is 35 feet. The harbor provides refuge for boats transiting the area and for commercial vessels engaged in seasonal fisheries. Eighty-five visiting boats, mostly commercial, use berths every day of the year.

Santa Barbara Harbor has been subject to sand shoaling due to littoral drift since its inception. Annual dredging under the authority of the U.S. Army Corps of Engineers has been required to keep the channel open to navigation. A minimum of 350,000 cubic yards of sand must be dredged from the entrance each year. Without dredging, the harbor would be clogged with sand and closed to navigation within one year.

The Army Corps of Engineers with the statutory authority and responsibility to dredge the harbor expended $743,000 in 1981. The ten year average cost for dredging has been $750,000 and the Corps has indicated a $1,000,000 capability for Santa Barbara Harbor dredging in 1985. The President's budget, however, contains no requested appropriations for FY 1985 for Santa Barbara Harbor dredging.

Dredging may not be necessary during the remainder of 1984 due to the unique lack of shoaling in the channel. This atypical condition is a result of unusually severe storms which caused massive beach erosion and closed the harbor with sand in 1983. As conditions return to normal, sand will again shoal the entrance. Continued funding for dredging is therefore necessary.

APPENDIX B

COMMERCIAL FISHING

Commercial fishing is a substantial industry in Santa Barbara. Fifteen percent of the boats in the harbor are engaged in this activity. Additionally over 53% of the transient boats visiting the harbor are actively engaged in commercial fishing making more than three trips per week. In the three months ending February, 1984, 92 of the 173 boats visiting the harbor were commercial.

The fisheries include bottom fish, shark, crab, shrimp, abalone, swordfish, and sea urchin. Sea urchins account for 9300 tons of the more than 12,000 tons of fish landed in Santa Barbara annually. The local sea urchin fleet accounts for over 65% of all sea urchins landed in California and Santa Barbara has the largest, single-port, sea urchin operation worldwide.

Ten urchin processing plants, which employ 700 persons, obtain nearly all their product from Santa Barbara. The economic benefit is widespread with one plant located in Santa Barbara and nine in Ventura and Los Angeles counties. In 1981, 90% of the product was exported to Japan. The fleet has grown locally due to the harbor's close proximity to active fishing grounds.

Most of the other species of fish are processed in Santa Barbara. There are 200 jobs associated with the processing aspects of the industry while over 400 persons are employed as crew members on fishing boats. The Santa Barbara fish processing and wholesale industry does about $10 million worth of business per year and is totally dependent on the harbor. The fishing fleet would have to relocate or cease operation if the harbor were to close. Relocation would double fleet fuel consumption to a minimum of 1.5 million gallons per year. This added cost of fuel would be reflected in increased wholesale and retail fish prices. Sea urchin processors believe that the market could not tolerate increased costs and prices and that this growing industry would be seriously curtailed.

APPENDIX C

HARBOR AND MARINE DEPENDENT BUSINESSES

Many other businesses in the City have grown up around the harbor. The boat, marine equipment, engine manufacturing, and sales and service enterprises employ approximately 100 persons. Two hundred persons are employed in boat services, repairs, chandleries, sport fishing, and restaurants within the harbor itself. A total of approximately 300 jobs are attached to harbor and marine dependent businesses. Enterprises in the harbor alone do approximately $12 million in business annually and all are immediately dependent on the operation of the harbor.

APPENDIX D

PROPERTY INVESTMENT

Dredging serves two fundtions: 1) Maintaining a navigable harbor channel; and 2) Replenishing sand on down-coast beaches. Sand continually flows along beaches in a west to east littoral drift. This sand settles out and clogs the harbor entrance. Meanwhile, deprived of nourishment, easterly beaches erode as sand is carried off. In the process of dredging, the easterly beaches are nourished with sand dredged from the harbor. Without the resupply of sand to beaches, the sand would soon be depleted. Within a year, there would be deep erosion and coastal property would be threatened. Damages could approach $5 million.

The value of boats berthed in the harbor is set at $35,800,000 by the County Tax Assessor. If the harbor were to be unusable, boats would be trapped in the harbor, forced to move to other harbors, or to anchor outside the harbor. Due to the insufficient supply of berths in Southern California, boats would cease being assets and, instead, be liabilities. If it not unrealistic to expect boat values to diminish by 50% or $17,900,000.

The City has constructed marinas and piers to serve boats. The current depreciated value of the marinas is $3.7 million. This value would be lost. In 1981-82 $1 million of maintenance and improvements were undertaken. Stearns Wharf has been the object of $4 million in structural renovation and improvements. The wharf would continue to operate although with decreased attractiveness at the onset. In time, however, shoaling would modify the surf line so that winter storms would threaten the structural integrity of the wharf.

The City recognizes the importance of the harbor and will be seeking long-term solutions to dredging and storm protection problems. In a completely local effort, the City established a harbor preservation fund in 1980-81 by resolution. Not intended for operating costs, $250,000 per year is appropriated to establish the City's contribution to the costs of a new breakwater.

In 1980, dredging of West Beach to replenish sand on easterly beaches and to open more small craft sailing water was accomplished through a $600,000 grant from the California Department of Boating and Waterways. The City, from local revenues, is undertaking a $100,000 dredging project inside the sand bar to open navigational channels, preserve a mooring area, and increase storm protection. A like amount will be budgeted every other year.

APPENDIX E

TOURISM

Approximately 6,700,000 tourists come to the Southcoast area annually. The Southcoast covers approximately 25 miles, including Carpinteria, Santa Barbara, and Goleta. According to Chamber of Commerce surveys, 16% or one million tourists come to the Santa Barbara area specifically to enjoy the ocean and harbor; 5% or $4,000,000 of tourist dollars are spent on recreation, sport fishing, and water related activities. The major Southcoast center for such activities is the Santa Barbara harbor. Closing the harbor would impact the tourist industry and local and state tax revenues derived from this industry.

APPENDIX F

OTHER IMPACTS

Two missions supported by the harbor are marine safety and environmental protection. The Coast Guard cutter berthed in the harbor has as area of responsibility for search and rescue and law enforcement over thousands of square miles from the Santa Barbara coastline to the Channel Islands. Closure of the harbor would necessitate moving the cutter to another location which would double its response time to marine emergencies often involving the preservation of life in the Santa Barbara and Point Conception areas. An oil containment vessel is moored in the harbor to provide quick response to oil spills. Lease sale Nos. 48 and 68 increase the need for a ready response service in the event of an oil spill in those lease tracts. Moving this vessel to a new location would double its response time to an oil spill emergency in the Santa Barbara Channel. Substantially increased ecological damage will occur if containment and cleanup efforts are delayed from two to four hours.

The Navy defense research vessel moored in the harbor has been conducting national defense research in the Santa Barbara Channel for the past 20 years. Harbor closure would necessitate relocating the vessel further from its research area at Santa Cruz Island and technical support in Santa Barbara. Other marine construction and service vessels presently berthed in the harbor would similarly have to relocate and be further from the area they serve.

A harbor closure would impact a large population of boaters who, unable to obtain permanent berths, bring their vessels to the harbor on trailers and launch them for pleasure boating, sport fishing, and commercial fishing. There are approximately 20,000 trailer boat launchings each year. Closure of the harbor would force these boaters to trailer their boats to lakes or other harbors. For many, increased fuel costs would be incurred. Many user might opt to sell their boats.

APPENDIX G

SUMMARY OF ECONOMIC AND EMPLOYMENT IMPACTS

I. COMMERCIAL FISHING		
Total Loss of Income for Fish Landed or Processed Locally		$10,000,000
II. HARBOR & MARINE BUSINESS DEPENDENT ON FISHING		
Fuel Dock	$1,280,000	
Chandleries, etc.	320,000	1,600,000
III. OTHER HARBOR & MARINE DEPENDENT BUSINESS		
Fuel Dock	$ 220,000	
Sportfishing	1,000,000	
Chandleries, dive shops, etc.	1,280,000	
Yacht Brokerages	6,000,000	
Other Marine Oriented Businesses	1,900,000	
Total Loss of Income		10,400,000
IV. TOURISM		
Total Loss of Tourist Dollars Spent		4,000,000
V. PROPERTY INVESTMENTS		
Property Damage Due to Beach Erosion	$ 5,000,000	
Boat Value @ 50% of $35,800,000 Assessed value (2-29-84)	17,900,000	
Land Improvements & Personal Property	1,800,000	
City Marina Investment	3,700,000	
Total Investment Loss		28,400,000
TOTAL LOSS OF INCOME AND INVESTMENTS		$54,400,000

EMPLOYMENT

I. COMMERCIAL FISHING INDUSTRY		
Crews employed on fishing vessels	- 400 jobs	
Fish Processing - local	- 200 jobs	
Fish Processing - Ventura/L.A.	- 700 jobs	
II. MARINE ORIENTED BUSINESSES - Local	- 300 jobs	
TOTAL LOSS OF JOBS		1,300 Jobs

Statement of David Yager, Chairman, Santa Barbara (Calif.) Board of Supervisors

The Board of Supervisors of Santa Barbara County unanimously supports the following appropriations for the Corps of Engineers:

* Continued dredging of Santa Barbara Harbor entrance	$ 1,000,000
* Continuation of Santa Barbara County Streams (Mission Creek) survey for flood control	242,000
* Continuation of Goleta Streams advanced engineering and design	325,000
* Reactivation of Santa Barbara Harbor planning, including reformulation of prior studies	300,000

We believe that continued Federal funding of the dredging necessary to assure that Santa Barbara Harbor remains open to navigation is fair and equitable. It is a regional harbor servicing transient vessels, as well as local boats. Santa Barbara is also the closest harbor of refuge to the treacherous Point Conception.

The two flood control investigations are nearing completion and should soon lead to decisions on the future of these urgently needed projects.

San Luis Rey River, Calif.

STATEMENT OF JOHN MacDONALD, COUNCILPERSON, OCEANSIDE, CALIF.

ACCOMPANIED BY:
DANA WHITSON, DIRECTOR OF SPECIAL PROJECTS
JIM MANUES, SUPERINTENDENT, OCEANSIDE HARBOR DISTRICT

Mr. Dodson. Next, is John MacDonald, councilperson, city of Oceanside.

Senator Mattingly. Mr. MacDonald.

Mr. MacDonald. Mr. Chairman, we have submitted a prepared statement for the committee. I would like to request your support for the initiation of construction on the San Luis Rey River flood control project. This project was authorized in 1967 by the Congress and is greatly needed to protect over 4,000 dwellings and businesses. The city supports private participation in coordinated flood control projects but, to this point, private interests have not been able to finance or build acceptable flood control protection.

I urge you to approve funding for a flood control plant which will meet the needs of all the residents and is vital to the safety and economic well being of our community.

Thank you very much for allowing me to testify.

Senator Mattingly. Thank you.

[The statement follows:]

STATEMENT OF JOHN MACDONALD, COUNCIL MEMBER, OCEANSIDE, CALIF.

I would like to request your support for the initiation of construction on the San Luis Rey River Flood Control Project. This project is urgently needed to provide protection to the over 4,000 dwellings and 59 businesses located within the floodplain.

I realize that many new construction starts have been held in abeyance while the Administration and Congress attempt to agree on a new federal cost-sharing policy. The City of Oceanside has submitted a letter of intent to share in project costs to the Assistant Secretary of the Army for Civil Works, in order to keep our project on schedule. We are willing to take a proactive role in negotiating a cost-sharing agreement which is fair to both the federal and local interests, and hope that on that basis funds for new construction could be appropriated by FY 85.

The City suffered $3 million in flood damages along the San Luis Rey River in 1978, $2.23 million in damages in 1980, and $700,000 in damages in 1983. Even though the magnitude of these storms was relatively small, the cumulative toll in property damages is substantial. Scientists have predicted that the west coast is entering a period of increasing rainfall. A serious storm could cause over $100 million in damage.

The Corps' proposed single levee flood control design has the unanimous support of the Oceanside City Council and is strongly endorsed by neighborhood associations in the project area. The adopted plan is the most economically and environmentally sound alternative for providing flood protection in this area.

The City of Oceanside respectfully requests that you approve the California Water Commission's recommendation for $13.9 million in funding for the San Luis Rey River Flood Control Project.

LETTER FROM JOHN MACDONALD, COUNCIL MEMBER, OCEANSIDE, CALIF.

April 18, 1984

The Honorable Mark Hatfield, Chairman
Senate Energy and Water Development Subcommittee
Dirksen Building SD-192 (1114)
Washington, D. C. 20515

Dear Congressman Hatfield:

On April 5, 1984, your committee heard testimony from Mr. Alex Deutsch, a private citizen, who opposes the construction of the Corps of Engineers proposed single levee flood control project on the San Luis Rey River, Oceanside, California. Mr. Deutsch bases his opposition on the premise that private property owners could build flood protection along the San Luis Rey River without any assistance from the federal government. Mr. Deutsch is one of 60 business owners within the flood plain along the project reach. There are also 4,000 residences within the flood plain.

The City of Oceanside is vitally concerned with the provision of adequate flood protection in the San Luis Rey River Valley. The City believes that there is a role for property owners in the implementation of the flood control project. However, the City cannot support piecemeal or improperly engineered flood improvements which could increase flood hazards or jeopardize protection along the entire project reach. The City has never received plans from property owners for a privately constructed flood control project, nor have we reached any assurances from private interests that such a project could be financed.

I testified at your April 5 hearing on the urgent need for flood protection along the San Luis Rey River. However, I did not have an opportunity to respond to Mr. Deutsch's statements to the Subcommittee. Senator Mattingly, acting as Chairman at the hearing, agreed to leave the record open on this issue so I would respectfully request that this response be incorporated as part of the record.

__ISSUE__: Mr. Deutsch stated that he has provided adequate flood protection along the portion of his property fronting the river.

__RESPONSE__: Mr. Deutsch built his levees and ring dike without any local or federal regulatory clearance. Although federal 404 permits were eventually issued after the fact, there were no engineering plans submitted to any local or federal agency for review and approval. The Los Angeles District Corps of Engineers recently surveyed the levees and informed Mr. Deutsch that, "Your levees have the capacity to provide between the 20- and 30-year level of protection with the required free board for earthen levees. However, our analysis does not address the structural integrity of the levees, the backwater effects that would occur from downstream, nor the effect of ponding behind your levees due to contributory flow from the surrounding watershed......Your levees have apparently been constructed with little or nor engineering considerations."[1]

__ISSUE__: Mr. Deutsch stated that property owners are willing to build 100-year level flood protection along the entire project reach, at no cost to the federal government.

__RESPONSE__: The City and Mr. Deutsch are united in our desire to have adequate flood protection provided as soon as possible along the San Luis Rey River. The City has actively encouraged private property owners to participate in a coordinated flood control project. The only stipulations which the City has made are that:

1. The property owners submit for the City's review and approval engineering plan for the project;

2. The plan be capable of receiving all regulatory permits;

3. The property owners provide guarantees to the City that entire project could be built without federal assistance.

To date, none of these requirements have been met. In the absence of any commitments from private interests, the City believes that we must proceed with the Corps' single levee plan.

__ISSUE__: Mr. Deutsch stated that it would cost private interests about $500,000 to build a double levee project to a 100-year level of protection versus the $45 million (inflated through the end of construction) estimated by the Corps of Engineers for their proposed single levee plan, which would be built to a standard project flood (SPF) level.

RESPONSE: The Los Angeles District Corps of Engineers recently analyzed the costs and benefits of 100-year level protection versus SPF protection for the single levee plan. That analysis concluded that the 100-year plan would save only $2 million in construction costs, or about 5% of total project costs. However, project benefits under the 100-year plan would decrease by about 6 times that amount. As a result, the 100-year plan could not be economically justified.[2]

The 100-year double levee plan suggested by Mr. Deutsch would be more costly than the Corps' proposed plan since it would require the construction of 3.5 miles of additional rock levee along the north side of the river, together with additional ponding requirements behind the north levee. According to the Los Angeles District Engineer, the 100-year double levee plan is not economically justified, and Mr. Deutsch's estimated costs to build the project are "grossly underestimated".[3]

ISSUE: Mr. Deutsch stated that the Corps of Engineers' proposed single levee plan is not economically justified.

RESPONSE: Mr. Deutsch's statement is based on critique of the Corps' right-of-way cost estimates contained in a report which he contracted from Mr. David Phifer, a local geologist.

The Corps of Engineers Phase II General Design Memorandum (GDM) estimated the value of floodway land at $2,000 an acre. This valuation was based on an independent fee real estate appraisal contracted by the Corps. That same appraiser was hired by the City of Oceanside to appraise floodway land in the "narrows" portion of the project. The City also obtained a second independent fee real estate appraisal for comparative purposes. Both appraisers arrived at substantially the same fair market: $1,500 per acre and $2,500 per acre, respectively.[4]

Floodway land values will remain relatively stable because under current City land use regulations those lands must remain undeveloped. One could infer that all floodway lands within the project area would be reasonably close in their appraised value.

In contrast, Mr. Phifer's report estimates the value of floodway land to be $64,500. However, the report fails to adequately document that estimate. Mr. Phifer derived his estimate through the capitalization method of computing fair market value. In contrast, the appraisals utilized by the Corps of Engineers were based on the comparable sales method, which is the method most accepted in a court of law.[5]

For those reasons, the Los Angeles District Engineer believes that the land values contained in the GDM are accurate, and that the benefit-cost ratio of 1.04 to 1 is correct.[6]

ISSUE: Mr. Deutsch stated that the City of Oceanside is unwilling and unable to raise its share of project costs.

RESPONSE: The local share of project costs will range from about $9 million to $16 million, depending on what cost sharing policy is ultimately applied. The City is currently implementing the following programs to meet our share of the project costs:

1. Approximately $400,000 has been spent to build flood protection at Murray Road under a Section 215 Agreement which allows pre-construction credit. Also under this Section 214 Agreement, about $300,000 has been expended to acquire project right-of-way in the river narrows.

2. The City currently collects drainage fees from all developments in the San Luis Rey Drainage Basin. At full buildout, more than $12 million can be raised through this source at current fee levels.
3. There is currently a bill pending before the State Legislature which would make the San Luis Rey River Flood Control Project eligible for $3 million in local reimbursement under California's Flood Control Subvention Program.
4. The City is investigating the formation of a benefit-assessment district encompassing properties within the 100-year flood plain. The proceeds from the assessment district would be applied toward the local share of project costs. Those property owners paying the assessment would, upon construction of the project, be relieved of their obligation to obtain flood insurance. The assessment district proceedings are not subject to a vote of the people.
5. All new developments in and adjacent to the river are required, under City policy, to grant land and build flood improvements per the Corps of Engineers' single levee plan.

In closing, I would like to reaffirm the City of Oceanside's desire to work with the private property owners and the federal government to implement flood protection along the San Luis Rey River. The City's paramount concern is that the existing homes and businesses along the river be afforded protection as soon as possible against devastating floods. The denial of federal funding for the project would not, in our view, achieve that objective. I urge you to allocate funds for the construction of the San Luis Rey River Flood Control Project in the FY 85 Energy and Water Development Bill.

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[1] Letter from Col. Paul Taylor, District Engineer, Los Angeles District Corps of Engineers, to Mr. Alex Deutsch, March 30, 1984.

[2] Ibid

[3] Ibid

[4] Letter from Col. Paul Taylor, Los Angeles District Corps of Engineers, to Mr. Alex Deutsch, March 29, 1984.

[5] Ibid

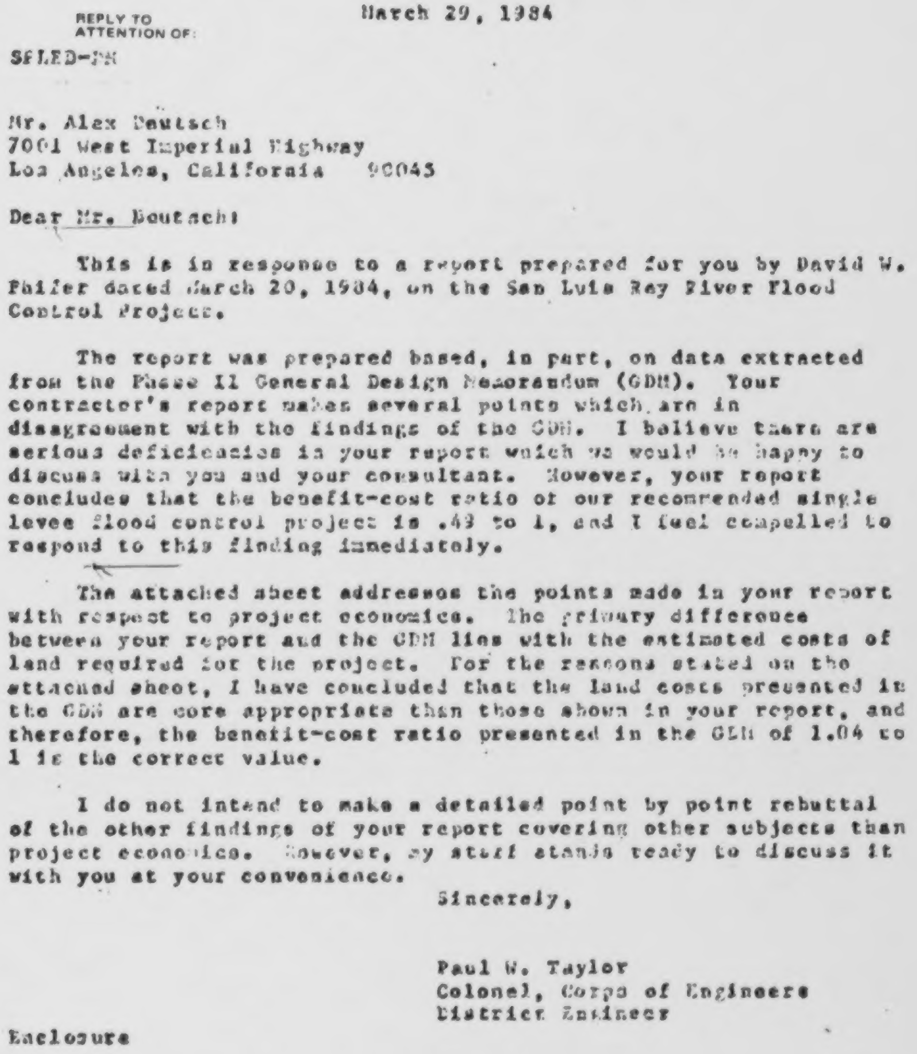
[6] Ibid

Sincerely,

John MacDonald

John MacDonald, Ed. D.
Council Member

LETTER FROM COL. PAUL W. TAYLOR, DISTRICT ENGINEER, CORPS OF ENGINEERS



REPLY TO
ATTENTION OF:
SPLED-PM

March 29, 1984

Mr. Alex Deutsch
7001 West Imperial Highway
Los Angeles, California 90045

Dear Mr. Deutsch:

This is in response to a report prepared for you by David W. Phifer dated March 20, 1984, on the San Luis Rey River Flood Control Project.

The report was prepared based, in part, on data extracted from the Phase II General Design Memorandum (GDM). Your contractor's report makes several points which are in disagreement with the findings of the GDM. I believe there are serious deficiencies in your report which we would be happy to discuss with you and your consultant. However, your report concludes that the benefit-cost ratio of our recommended single levee flood control project is .43 to 1, and I feel compelled to respond to this finding immediately.

The attached sheet addresses the points made in your report with respect to project economics. The primary difference between your report and the GDM lies with the estimated costs of land required for the project. For the reasons stated on the attached sheet, I have concluded that the land costs presented in the GDM are more appropriate than those shown in your report, and therefore, the benefit-cost ratio presented in the GDM of 1.04 to 1 is the correct value.

I do not intend to make a detailed point by point rebuttal of the other findings of your report covering other subjects than project economics. However, my staff stands ready to discuss it with you at your convenience.

Sincerely,

Paul W. Taylor
Colonel, Corps of Engineers
District Engineer

Enclosure

ANALYSIS OF PROJECT ECONOMIC FINDINGS AS REPORTED IN THE D.W.PHIFER DOCUMENT OF 20 MARCH 1984

1. The Corps of Engineers Phase II General Design Memorandum (GDM) includes a real estate appraisal report which identifies floodway land to have a value of up to $2,000 per acre and lands outside the floodway are valued from $12,000 to $65,000 per acre.

2. Mr. Phifer's report estimates the value of floodway land to be $64,500. The report provides inadequate documentation of this estimate.

3. The Corps' real estate appraisal was prepared by an independent fee real estate appraiser under contract to the Corps. The same appraiser was hired by the City of Oceanside to prepare one appraisal of the fair market value of land within the "Narrows" of the City of Oceanside. A second independent fee real estate appraiser was hired by the City for comparative purposes. Both appraisers arrived at substantially the same fair market value of floodway land. The one value was $1,500 and the other was $2,500. One could infer that if the same two appraisers evaluated all of the project lands required, that they would most likely be reasonably close in their appraisal of the value of the lands.

4. Floodway land values will remain relatively fixed because under current land use regulations they must remain undeveloped until flood protection of at least 100-year flood level is provided.

5. There are two basic methods of computing fair market value of real estate -- comparable sales and capitalization. The most reliably used method and the one most acceptable or definable in a court of law is by comparable sales. That is the method generally used by the Corps. Mr. Phifer has relied on the capitalization method.

6. In October 1983, 191 acres of land were sold along the San Luis Rey River in an area outside the floodway. The amount paid was $3,756,000. This indicates a value of $19,665 per acre, substantially less than Mr. Phifer's report claims.

LETTER FROM COL. PAUL W. TAYLOR, DISTRICT ENGINEER, CORPS OF ENGINEERS

March 30, 1984

REPLY TO
ATTENTION OF:
SPLED-DM

Mr. Alex Deutsch
7001 W. Imperial Highway
Los Angeles, California 90045

Dear Mr. Deutsch:

On March 7, 1984, Mr. Don Dillon, Deputy Assistant Secretary of the Army for Civil Work's, accompanied by the Los Angeles District staff visited Oceanside, California, to meet with you regarding the San Luis Rey River flood control project. This meeting resulted in my decision to complete a cursory analysis of your existing double levee system to determine the degree of protection it provides. In addition, a review and analysis was conducted of our project for the San Luis Rey River which would reduce the level of protection provided to the 100-year flood.

The District sent a team to Oceanside on 12 March to make a survey of a cross section of the existing river channel between your levees on the north and south sides of the river. A normal depth calculation was then made to determine the capacity of that section. The results indicated that your levees have the capacity to provide between the 20- and 30-year level of protection with the required freeboard for earthen levees. However, our analyis does not address the stuctural integrity of the levees, the alignment of the levees, the backwater effects that would occur from downstream, nor the effect of ponding behind your levees due to contributory flow from the surrounding watershed.

A cursory analysis of our recommended single levee plan reduced to convey the 100-year frequency flood was conducted. Our conclusions are as follows:

a. The total cost reduction from the SPF plan ($38,000,000) would be only approximately $2,000,000.

b. The benefits for such a reduction decrease approximately six times faster than the associated costs.

c. The overall benefit/cost ratio for the 100-year plan would be 0.96 to 1.

Based on this cursory evaluation, the 100-year single levee flood control plan is economically less desireable than the SPF plan and may indeed not be justified. For every dollar spent on providing a level of protection above the 100-year flood up to the SPF plan, there is a six fold increase in benefits from flood damages prevented. The relatively small difference in costs between the single levee 100-year plan and SPF plan is attributed to identical structural requirements for the levees, i.e. depth of toe, thickness of revetment, and size and number of groins, as well as very little difference in land requirements.

A 100-year double levee plan would cost more than the single levee plan, because the effect would be to delete 33 groins while adding approximately 3.5 miles of levee along the north side of the river, together with additional ponding requirements behind the north levee. The 100-year double levee plan would not be economically justified.

Evaluations were made of various 100-year channels in 1977 and 1978. Those evaluations were done during the early planning stages of the Phase I GDM. Those alternatives were dismissed at the first Citizens Advisory Committee meetings in 1978.

I have therefore come to the following conclusions:

a. Your implications that your levees will provide 100-year flood protection are incorrect.

b. Your estimated cost of $15 million to provide the 100-year protection is grossly underestimated.

c. Your existing levees apparently have been constructed with little or no engineering considerations.

d. The single levee plan is the most cost effective means of achieving a high level of flood protection along the San Luis Rey River.

e. The Standard Project Flood level of protection maximizes net benefits and is the most desireable plan from a social and economic perspective.

I reiterate from my previous communications with you that you have not provided an engineered plan for the City of Oceanside or the Corps of Engineers to consider.

Sincerely,

Paul W. Taylor
Colonel, Corps of Engineers
District Engineer

AUBURN-FOLSOM SOUTH UNIT, CALIFORNIA

STATEMENT OF KIRT BETTS, CONSULTANT, EAST BAY MUNICIPAL UTILITY DISTRICT

Mr. DODSON. Next, I would like to introduce Kirt Betts, consultant for the East Bay Municipal Utility District.

Mr. BETTS. Mr. Chairman, the East Bay Municipal Utility District supplies water for industrial use for 1.1 million people in a 300 square mile area for the counties in San Francisco Bay. We are here in support of a $5.25 million appropriation for the Auburn-Folsom South unit.

This has a twofold interest. First is a contract to supply the water and second is that portion of the Folsom South tributary which lies downstream from the district's primary water source reservoirs in the river basin. Extensive ground water pumping of that tributary is causing substantial seepage loss, much of which must be replaced by reducing water stored this way for its own use. The expected solution to this problem over 20 years has been an important service to our Folsom South project.

We urge your favorable consideration for this request.

Senator MATTINGLY. Thank you.

[The statement follows:]

STATEMENT OF JEROME B. GILBERT, GENERAL MANAGER, EAST BAY MUNICIPAL UTILITY DISTRICT

The East Bay Municipal Utility District, which supplies water for municipal and industrial uses to 1.1 million people in a 300-square-mile area of Alameda and Contra Costa Counties on the eastern side of San Francisco Bay, supports the California Water Commission's recommendations regarding appropriations for Federal Flood Control and Reclamation Programs in California for fiscal year 1984-85.

Specifically, the District urges appropriation for the following project (reference California Water Commission Summary dated March 2, 1984):

No. 47	Auburn-Folsom South Unit	$5,250,000

The District has a twofold interest in the completion of the Auburn-Folsom South Project: first, as a contractor for project water; and second, as an indirect beneficiary of water imported to that portion of the Folsom South service area which lies downstream from the District's primary water source reservoirs in the Mokelumne River basin.

Extensive groundwater pumping in the vicinity of the lower Mokelumne River is causing substantial seepage loss, much of which must be replaced by releases of water stored by East Bay Municipal Utility District for its own use. As these seepage losses increase, the dependable yield of the District's Mokelumne River Project is reduced proportionately. Since the Mokelumne River Project supplies more than 90 percent of the District's water, the project yield is of major concern.

For more than twenty years, the expected solution to this problem has been an imported surface supply from the Auburn-Folsom South Project. The agricultural interests along the lower Mokelumne River have also looked to this project to meet their long-term water requirements. Currently the District provides storage, on an interim basis, to these agricultural interests. Without the Auburn-Folsom South Project, their water requirements will eventually have to be met from groundwater. Since the groundwater basin is already classified as critical, increased pumping on that basin can only result in accelerated decline in the groundwater table. This consequence could prove disastrous to agriculture and the local communities.

In an effort to ensure the timely completion of the Auburn-Folsom South Unit of the Central Valley Project, the District's Directors have expressed an interest in participating in the construction of the power function of Auburn Dam and extension of the Folsom South Canal (EBMUD Board Resolution 30324, August 10, 1982).

The District is currently cooperating with San Joaquin County interests in the implementation of a groundwater study which will develop a model of the groundwater basin. The study will provide information as to the best use and the best place of use for the imported surface supply from the Folsom South Canal.

For the above reasons, East Bay Municipal Utility District seeks your Committee's support for this project.

MERCED COUNTY STREAMS, CALIFORNIA

STATEMENT OF TIMOTHY McCULLOUGH, MANAGER, MERCED IRRIGATION DISTRICT

ACCOMPANIED BY JAY ANDERSON, SECRETARY, MERCED COUNTY STREAMS PROJECT

Mr. DODSON. Next is Mr. Tim McCullough, who is manager of the Merced Irrigation District.

Mr. MCCULLOUGH. I am Tim McCullough, manager of the Merced Irrigation District. With me today is Jay Anderson, who is the secretary of the Merced Irrigation District. We are here on behalf of that project and representing the county of Merced and also the city of Merced.

We are in support of the President's request that the Corps of Engineers initiate our project in the amount of $4 million.

On behalf of the time restraints that we have, I will ask that my statement that I have prepared will be entered into the record and be considered.

Senator MATTINGLY. Thank you.

[The statement follows:]

STATEMENT OF TIMOTHY R. McCULLOUGH, MANAGER, MERCED IRRIGATION DISTRICT, CALIFORNIA

My name is Timothy R. McCullough, Manager of the Merced Irrigation District in Merced, California. I am representing the County of Merced, which is the sponsor of the Merced County Streams Project: The County is joined by the Merced Irrigation District, the City of Merced, the El Nido Irrigation District and the Le Grand-Athlone Water District.

The plan formulated by the Corps of Engineers, Sacramento District, shows that the construction of dams on Canal and Black Rascal Creeks, the enlargement of Bear Creek Dam and the improvement of 47 miles of channels and levees would provide for protection to about 55,000 acres of agricultural and urban areas. It would also provide protection to Castle Air Force Base, a major installation of the Strategic Air Command. The protection to Castle Air Force Base at present is by diverting flood water into the Merced Irrigation District canals through areas completely out of the flood plain. This practice has resulted in damages to the District's water distribution system, and must be discontinued. The City of Merced, with a population of approximately 40,000 is vulnerable to flooding without the project.

The agricultural areas subject to flooding are planted to a variety of tree and row crops and comprise some of the finest agricultural lands in the San Joaquin Valley. Dairy and beef cattle thrive on many acres of irrigated pasture. Less than 2% of the 1983 crop value was under any Federal or State subsidy.

The total cost of the project is estimated to be $110,000,000 and is economically feasible with a favorable benefit-cost ratio. Damages are estimated to be in excess of $7,000,000 per year without the construction of the project. Portions of the project area were declared a Disaster Area due to heavy flooding in 1982-83.

The studies by the Corps of Engineers were started in 1958 and led to Congressional Authorization in 1970. Approximately $9,316,000 has been spent on the Phase I and Phase II studies by the Corps, and the project is in line for a construction start.

The project has the support of State and Local authorities and negotiations are under way for the funding of the Non-Federal share.

This is a request that your Committee support the sum of $4,000,000 as recommended by the California Water Commission, and the Corps of Engineers. The President's Budget includes this amount. The allocation of this amount will allow the project, which is so vital to the Community, State and Nation to proceed.

SAN DIEGO COUNTY FLOOD CONTROL PROJECTS

STATEMENT OF THOMAS D. HAMILTON, CHAIRMAN, BOARD OF SUPERVISORS, SAN DIEGO COUNTY

ACCOMPANIED BY GREGORY R. COX, MAYOR, CHULA VISTA, CALIF.

Mr. DODSON. Next it is my pleasure to introduce Mr. Tom Hamilton, chairman of the board of supervisors of San Diego County.

Mr. HAMILTON. Mr. Chairman, I am Thomas Hamilton, chairman of the board of supervisors of San Diego County. I have prepared a written statement I would like to submit for the record and I would like to make a few brief comments.

We are very concerned about the Los Coches flood control project and the Telegraph Canyon project. They are small project budgets included in the Corps of Engineers' budget and we would like to retain them. Our main concern, however, is the Sweetwater River flood control project which is a combined flood control project and a highway improvement project. This would be funding for phase 2 of the Sweetwater flood control project for $4 million which is a line item project in the budget and if we don't get it this year we will jeopardize $46.5 million in interstate highway construction funds and $8.6 million in the California Department of Transportation funds for Highway 54 in the Interstate Highway System and I-5. So, it is very important that that concept be kept on line and we urge you to keep the Sweetwater flood control project phase 2 for $4 million in this budget.

Thank you, sir.

[The statement follows:]

STATEMENT OF THOMAS D. HAMILTON, CHAIRMAN, SAN DIEGO COUNTY BOARD OF SUPERVISORS

I am pleased to have the opportunity to appear before you on behalf of the San Diego County Board of Supervisors. The Board strongly supports Federal assistance for the five flood control and reclamation projects in San Diego County as contained in the President's FY 1985 Budget. Two of the projects, Los Coches Creek and Telegraph Canyon, are included in the Corps of Engineers Small Projects Budget. The FY 1985 Budget also recommends appropriations for the Sweetwater River, San Luis Rey River, and Santa Margarita Projects.

Each of these projects is vital to assist San Diego County in meeting local flood control needs. I join with the California Water Commission in urging your approval of full funding of these essential projects as highlighted below:

1. The Sweetwater River Flood Control Project is a joint flood control and highway improvement project which is funded by multiple units of government at the Federal, State, and local levels. Of critical concern is the danger that any delay in funding the project at the front end could jeopardize some $46 million in Interstate highway funds which have been programmed for the last phase of the project. It is extremely important that adequate funding as recommended by the Corps of Engineers be authorized in the FY 1985 budget to permit the beginning phase of the project to move forward.

   The Sweetwater River Flood Control Project is underway after many years of planning, engineering, environmental research, multi-agency review and coordination, public hearings, and final approvals. This project involves construction of a 3.2 mile flood control channel at the mouth of the Sweetwater River in San Diego County. The channel will intersect a segment of Interstate 5 which is in serious need of improvement itself. As a consequence, and because the Interstate Route 5 improvements require corollary improvements to Interstate Route 805 and State Highway Route 54, the project has been planned and designed as a joint flood control and highway improvement project. Substantial cost savings will be realized as a consequence of coordinating the flood control and highway components of the project.

The California Department of Transportation has budgeted $8.6 million for the highway components of this project. Further, it has programmed $46.5 million in Interstate highway construction funds. These Interstate highway funds must be obligated by the conclusion of the Interstate program in September 1986. If further delay is encountered at the front end of this combined project, it may become impossible to meet the obligation deadline for these funds. The net effect would be the loss of substantial funding for the Sweetwater project.

Adequate funds must be included in the FY 1985 budget to permit this phase of the project to move forward. Last year, the Corps' budget provided for completion of railroad relocations and bridges in the channel area. The California Department of Transportation is now advertising the contract to construct a detour for Interstate 5 across the proposed channel.

The President's Budget includes $4.0 million for Corps of Engineers' work on Phase II of the Project. This phase is the first of three contracts which will include Sweetwater River Channel construction. Also included in this phase are improvements to Interstate 5, State Route 54, ramps, local roadways, bridges, and utility relocations.

2. The San Luis Rey River Project is desperately needed to provide flood control facilities to protect the residents in the area. In recent years, storms have washed away five County bridges and caused serious property damage.

The San Luis Rey River Project calls for construction of channel improvements of 7.2 miles of the River, beginning at its mouth in the City of Oceanside. The lower 1.5 miles would be protected by minimal levees, with an earth bottom; a revetted channel comprises the upper 5.7 miles.

3. The Santa Margarita River Project is an integral component of San Diego County's local water development programs. Due to inadequate storage capabilities, as much as half of the water currently received in California from the Colorado River must be diverted to Arizona. This project, together with another storage facility proposed by our local County Water Authority, will contribute significantly toward solving local water supply needs.

The project consists of two dams and reservoirs on the Santa Margarita River in northern San Diego County, with two major conveyance lines to serve the Fallbrook Public Utility District and the Marine Corps base at Camp Pendleton. This multi-purpose project will provide a supplemental municipal and industrial water supply to both the District and Camp Pendleton, and will provide supplemental irrigation water to the District. Additionally, the project will be used for flood control, recreation, and regulation of imported water.

The proposed Santa Margarita River Project is part of a program for storage of additional water supply. Our local water authority is proceeding with a separate project known as Pamo Reservoir. The addition of Pamo Reservoir would provide an emergency water supply to two-thirds of the San Diego region with the Santa Margarita Project providing the same benefits to the northern one-third of the region. Completion would help to alleviate the San Diego region's emergency water supply needs.

The President's FY 85 Budget includes $1.5 million for this important project.

I would like to submit for the record copies of Resolutions by the San Diego County Board of Supervisors and the Chula Vista City Council assuring continued local support for the Sweetwater River and Telegraph Canyon Creek Projects.

Thank you for the opportunity to share these remarks with you.

WEDNESDAY, FEBRUARY 8, 1984

No. 6

Resolution of Support and Cooperation with United States of America concerning channel improvements, Sweetwater River, San Diego County, California.

On motion of Supervisor Hamilton, seconded by Supervisor Williams, the following resolution is adopted:

WHEREAS, a flood-control project for Sweetwater River, San Diego County, California, was authorized August 13, 1968 by Act of Congress, for the U.S. Army Corps of Engineers, Los Angeles District, California, for flood control along said stream; and

WHEREAS, protection against flood damage would be provided to property along the 3.2-mile reach of Sweetwater River, downstream from Bonita Mesa Road to San Diego Bay, all in the cities of National City and Chula Vista, and in the County of San Diego, California, by levee and channel improvements as authorized by Congress; and

WHEREAS, Article 4, Chapter 7, Part 2, Division 2, Title 3 of California Government Code commencing with Section 25680 and California Government Code Section 6500 et seq., authorizes the County of San Diego to cooperate with the United States in the construction of flood-control projects; and

WHEREAS, on April 13, 1976 the Board of Supervisors of the County of San Diego, by Resolution No. 36, endorsed and supported the Sweetwater River Flood Control Project and gave assurances to provide the local cooperation necessary for the construction of the project; and

WHEREAS, the cities of Chula Vista and National City and the Unified Port District of San Diego have by resolution, supported the Sweetwater River Flood Control Project and have requested the County of San Diego to give assurances of cooperation to the government of the United States.

NOW, THEREFORE, BE IT RESOLVED by the Board of Supervisors of San Diego County, California, that it reaffirms its support for the flood-control program by the United States Army Engineers, for Sweetwater River in San Diego County.

BE IT FURTHER RESOLVED that it is the intent of this Board to support appropriation in Fiscal Year 1985 for the Sweetwater River Flood Control project to the full amount of the capability of the Army Engineers.

PASSED AND ADOPTED by the Board of Supervisors of the County of San Diego, State of California, this 8th day of February, 1984, by the following vote:

AYES: Supervisors Hamilton, Boarman, Williams

NOES: Supervisors None

ABSENT: Supervisors Fordem, Eckert

RESOLUTION REAFFIRMING ASSURANCE OF LOCAL COOPERATION FOR THE FEDERAL FLOOD CONTROL PROJECT ON TELEGRAPH CANYON CREEK

ON MOTION of Supervisor Hamilton, seconded by Supervisor Williams,the following resolution is adopted:

WHEREAS on July 12, 1983 (17) the Board of Supervisors of the County of San Diego by resolution expressed the intent of San Diego County to provide assurances of local cooperation for a proposed Federal Flood Control Project on Telegraph Canyon Creek; and

WHEREAS the planned project is in the City of Chula Vista and County of San Diego; and

WHEREAS the City Council of Chula Vista, by resolution 8015, in March 1978 supported the project and requested the Board of Supervisors to provide qualified assurances of local cooperation; and

WHEREAS it is also a requirement of the Federal government that local agencies comply with Section 221 of the Flood Control Act of 1970, Public Law 91-611;

NOW, THEREFORE, BE IT RESOLVED by the Board of Supervisors of the County of San Diego that it affirms its support for that project for flood control along Telegraph Canyon Creek, that is defined in the Corps of Engineers final report.

BE IT FURTHER RESOLVED that the County Board of Supervisors recommends that the Chief of the Corps of Engineers allocate $4.0 million for the completion of construction of the Federal Flood Control Project on Telegraph Canyon Creek in the FY85 budget under the Corps "Small Project" program.

BE IT FURTHER RESOLVED that it is the intent of this Board to provide the following assurances to the Federal government:

1. Provide, without cost to the Federal government, all lands, easements, and right-of-way necessary for the construction of the project including both flood control and recreation features.

2. Bear the expenses of all necessary construction, modification, or relocation of highways, bridges, utilities, and other facilities as required in connection with the project.

3. Maintain and operate all flood control and recreation facilities after completion of installation in accordance with regulations to be prescribed by the Secretary of the Army.

4. Hold and save harmless the United States from damages due to the construction works.

5. Adjust all water rights claims resulting from the project.

6. Prevent any obstruction, encroachment, or operation which could interfere with the proper functioning of the project, or which could cause changes in stream regimen that could damage the structural integrity of the project.

7. Provide guidance and leadership in preventing unwise future development of the flood plain by use of appropriate flood plain management techniques to reduce flood losses.

8. Assure access to all persons on equal terms for approved recreational use.

9. Provide adequate policing of the area.

10. Comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646.

11. Comply with Section 221 of the Flood Control Act of 1970, Public Law 91-611.

PASSED AND ADOPTED by the Board of Supervisors of the County of San Diego, State of California, this 8th day of February, 1984 by the following vote:

AYES: Supervisors Hamilton, Boarman and Williams
NOES: Supervisor None
ABSENT: Supervisors Fordem and Eckert

STATE OF CALIFORNIA) ss
County of San Diego)

I, PORTER D. CREMANS, Clerk of the Board of Supervisors of the County of San Diego, State of California, hereby certify that I have compared the foregoing copy with the original resolution passed and adopted by said Board, at a regular meeting thereof, at the time and by the vote therein stated, which original resolution is now on file in my office; that the same contains a full, true, and correct transcript therefrom and of the whole thereof.

Witness my hand and the Seal of said Board of Supervisors, this 8th day of February, 1984. (7)

PORTER D. CREMANS
Clerk of the Board of Supervisors

Barbara Thureson

By Barbara Thureson
Deputy

(Rev. 1/31/84)

RESOLUTION NO. 11527

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA REQUESTING MAXIMUM FEDERAL PARTICIPATION IN FUNDING OF THE SWEETWATER RIVER FLOOD CONTROL PROJECT

The City Council of the City of Chula Vista does hereby resolve as follows:

WHEREAS, the City of Chula Vista, on April 6, 1965, by Resolution No. 3668, strongly endorsed and supported the Sweetwater River Flood Control Program authorized by Act of Congress, Public Law 228, 77th Congress, as approved on August 18, 1941; and

WHEREAS, the City of Chula Vista, pursuant to said resolution, requested the County of San Diego, California to give those assurances required by the U. S. Army Engineers to provide the local cooperation necessary for the construction of the project; and

WHEREAS, on April 20, 1965, the County Board of Supervisors, by Resolution No. 60, provided the government of the United States said assurances of local cooperation; and

WHEREAS, the City Council declared it to be a policy and intent of the Council to enter into negotiations prior to actual construction to determine a mutually equitable apportionment of costs to each local agency including the County, to reimburse the County of San Diego for betterments in highways, roads, streets, bridges, utilities and irrigation and drainage facilities for which the state or federal agencies declare the costs beyond their responsibility; and

WHEREAS, said project to be constructed in conjunction with State Highway 54 would provide protection against flood damage to property along the 3.2 mile reach of the Sweetwater River downstream from Interstate 805 Freeway to San Diego Bay, all in the cities of National City and Chula Vista, and the County of San Diego, California by levee and channel improvements under consideration for construction by the United States; and

WHEREAS, the City of Chula Vista has strongly supported the construction of such joint freeway flood control project since 1964; and

WHEREAS, said project is vital to serve the freeway needs of the South Bay area and to relieve the extreme congestion encountered daily on the I-5 Freeway between Chula Vista and National City and will correct many of the flooding problems which have been frequently inflicted upon the Sweetwater Valley; and

WHEREAS, the City has previously agreed to mitigate certain environmental concerns by (a) agreeing to delete the ramps from State Route 54 to Tidelands Avenue and (b) delete the construction of the Tidelands Avenue Bridge across the channel from this project; and

WHEREAS, the City Council on October 2, 1979 conducted a public hearing on the support of the flood control project and by a 4-1 vote accepted the staff report in support of the joint freeway flood control project; and

WHEREAS, the City of Chula Vista on February 9, 1982, by Resolution No. 10773, reaffirmed its support of the project;

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Chula Vista, that the United States Congress be requested to appropriate sufficient funding to utilize the full capability of the U. S. Army Corps of Engineers for the Sweetwater River Flood Control Project during Fiscal Year 1985.

BE IT FURTHER RESOLVED, that the City Clerk of the City of Chula Vista be, and is hereby directed, to forward a certified copy of this Resolution to the District Engineer, U. S. Army Engineer District, Los Angeles, at Los Angeles, California.

Presented by

/s/ John P. Lippitt
John P. Lippitt
City Engineer

Approved as to form by

Thomas J. Harron
Thomas J. Harron
City Attorney

ADOPTED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF CHULA VISTA, CALIFORNIA, this 7th day of February, 19 84, by the following vote, to-wit:

AYES: *Councilmen* Moore, McCandliss, Scott, Malcolm, Cox
NAYES: *Councilmen* None
ABSTAIN: *Councilmen* None
ABSENT: *Councilmen* None

Gregory R. Cox
Mayor of the City of Chula Vista

ATTEST Patricia A. Guardacasta
Deputy City Clerk

RESOLUTION NO. 11528 (Rev. 1/31/84)

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA REQUESTING MAXIMUM FEDERAL PARTICIPATION IN FUNDING OF THE TELEGRAPH CANYON CREEK FLOOD CONTROL PROGRAM

The City Council of the City of Chula Vista does hereby resolve as follows:

WHEREAS, Act of Congress, Public Law 228, 77th Congress, approved August 18, 1941, authorized the Chief of Engineers to take surveys for flood control in the drainage areas of all streams in San Diego County, California, flowing into the Pacific Ocean; and

WHEREAS, the project report and preliminary plans for Telegraph Canyon Creek, San Diego County, California, have been completed by the District Engineer, U. S. Army Engineer District, Los Angeles, at Los Angeles, California; and

WHEREAS, protection against flood damage would be provided to property along the one mile reach of Telegraph Canyon Creek downstream from Fourth Avenue to San Diego Bay, all in the City of Chula Vista and the County of San Diego, California, by channel improvement under consideration for construction by the United States; and

WHEREAS, the City Council of the City of Chula Vista has by Resolution 11292 on June 21, 1983, expressed its continuing support for the Telegraph Canyon Creek Flood Control Program; and

WHEREAS, said aforementioned Resolution further expressed the Chula Vista City Council's willingness to bear an equitable distribution of those costs beyond the responsibility of State or Federal agencies; and

WHEREAS, the Board of Supervisors of the County of San Diego, California have assured the local cooperation necessary for the construction of the project; and

WHEREAS, serious flooding and erosion have occurred within the subject reach of Telegraph Canyon Creek within several recent years;

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Chula Vista that the United States Congress be requested to appropriate sufficient funding for the Small Projects category (Section 205) of the U. S. Army Corps of Engineers budget for Fiscal Year 1985 so that construction can begin on the Telegraph Canyon Flood Control Project during Fiscal Year 1985.

BE IT FURTHER RESOLVED, that the City Clerk of the City of Chula Vista be, and is hereby directed to forward a certified copy of this Resolution to the District Engineer, U. S. Army Engineer District, Los Angeles, at Los Angeles, California.

Presented by	Approved as to form by
/s/ John P. Lippitt	Thomas J. Harron
John P. Lippitt City Engineer	Thomas J. Harron City Attorney

ADOPTED AND APPROVED BY THE CITY COUNCIL OF THE CITY OF CHULA VISTA, CALIFORNIA, this 7th day of February, 19 84, by the following vote, to-wit:

AYES: *Councilmen* Moore, McCandliss, Scott, Malcolm, Cox

NAYES: *Councilmen* None

ABSTAIN: *Councilmen* None

ABSENT: *Councilmen* None

Gregory R. Cox

Mayor of the City of Chula Vista

ATTEST Patricia A. Guardacosta

Deputy City Clerk

STATEMENT OF GREGORY R. COX, MAYOR, CHULA VISTA, CALIF.

Mr. Dodson. With Mr. Hamilton is Mayor Gregory Cox of the city of Chula Vista.

Senator Mattingly. Mayor Cox.

Mr. Cox. Thank you, Mr. Chairman.

I also would like to speak on behalf of and in support of the Sweetwater River flood control project and also the Telegraph Canyon Creek flood control project. I have prepared written comments that I have submitted for the record in support of both of these projects.

In the case of the Sweetwater flood control project the request is for $4 million. It is included in the President's budget and it is also recommended in the request of the California Commission on Water. It is our hope that that will be the final bill that comes out of the U.S. Congress. That project, the one that Supervisor Hamilton alluded to, is one of three projects. The one is over $102 million which is desperately needed in that area and also will provide an interconnect and also eliminate a 2-mile stretch of substandard freeway in the city of Chula Vista. Over the last 6 years there have been some 15 deaths attributed to the reduction in lane size. So, we are very hopeful that that $4 million will be included in the phase 2 work.

The other project that is included is a small project, the Telegraph Canyon Creek. It is not a line item. I realize that it is recommended for full support by the Corps of Engineers and it would be our hope that that would be included in the budget.

Thank you very much.

Senator Mattingly. Thank you.

[The statement follows:]

STATEMENT OF GREGORY R. COX, MAYOR, CHULA VISTA, CALIF.

SPEECH BY MAYOR GREGORY COX (CHULA VISTA, CALIFORNIA) TO CONGRESSIONAL COMMITTEE RE TELEGRAPH CANYON CREEK FLOOD CONTROL PROJECT

Telegraph Canyon Basin is a long, narrow basin which is situated wholly in San Diego County and partially in the City of Chula Vista. The City is at the lower end of the basin where it joins San Diego Bay, and, coincidentally, where the basin's runoff reaches its maximum volume.

The relatively natural streambed which traverses the City was until recent years of adequate capacity to conduct storm waters generated by the majority of storms. The character of development in the basin at that time was predominantly rural. Runoff factors were low as was potential for damage to property.

However, in recent years development within the City and within the basin has proceeded at a rapid pace. The lower reach of Telegraph Canyon is now highly urbanized with a resultant increased potential for damage by any given level of flooding. Upstream development has occurred which reduces the ability of the basin to absorb storm waters, thereby increasing both the total and peak volumes of storm waters to be accommodated downstream. Thus, the area is faced with increased density of development AND increased runoff. That combination has resulted in both more frequent and more severe flooding in the lower reach of Telegraph Canyon Basin.

The existing channel is predominantly natural in character with scattered improvements and crossings. The "system" has capacities which vary along its langth, but could be typified as being about 20% of what would be necessary to accommodate a 100-year expectancy storm. Thus, the existing capacity is clearly inadequate.

The Corps of Engineers estimates the value of damageable property in the standard project flood overflow area of Telegraph Canyon Creek to be approximately $39,000,000 (1983 prices). The extent of flood damage to occur would depend upon the nature of the storm involved, but the 100-year storm (for which the proposed project would provide protection) is expected to generate over $5,000,000 in damages. The total project cost is estimated to be $5,390,000 which is essentially the same as the expected damage from a single 100-year expectancy storm.

The Telegraph Canyon Creek project is logical, justifiable and needed. It will be accomplished only through the cooperative efforts of the local citizenry, local governmental units, State government and the Federal government.

TELEGRAPH CANYON CREEK FLOOD CONTROL PROJECT

1. STUDY AUTHORITY

Section 4 of the Flood Control Act of August 18, 1941, authorized and directed the Secretary of War to make surveys for flood control of "all streams in San Diego County, California, flowing into the Pacific Ocean." Preparation of a draft interim feasibility report by the Corps of Engineers was in progress under this authority when communications were submitted by the County of San Diego (January 19, 1977) and the City of Chula Vista (May 11, 1977) requesting that Telegraph Canyon Creek be studied as a small project under the authority contained in Section 205, Flood Control Act of 1948, as amended.

The City and County requested such action because (1) the construction cost of the most likely solution was not expected to exceed the then-current Federal cost limitation of $2 million, and (2) the implementation of the program would be greately accelerated under that authority.

2. GENERAL DESCRIPTION

Telegraph Canyon Creek Basin (see Plate 2) is an elongated area comprising about 4,800 acres or 7.5 square miles in San Diego County and is located about 8 miles south of the City of San Diego (see Plate 1). The Telegraph Canyon Creek study encompassed all of Telegraph Canyon Creek from its headwaters in the San Miguel Mountains to San Diego Bay. The creek flows through both unincorporated county territory and the City of Chula Vista. This report is concerned principally with water-related problems in the downstream one-mile reach adjacent to San Diego Bay.

The community characteristics of the Telegraph Canyon Creek Basin are best described by considering the area as consisting of two distinct communities. The urban area east of Broadway is primarily a middle class residential community. This area consists of medium to high value homes and apartments. The area west of Broadway Avenue is primarily industrial and commercial structures.

Two large manufacturing plants and a utility complex dominate the economy of the project area. The Ratner Company, a major producer of men's clothing, and the San Diego Gas and Electric Southbay power plant are in the lower reach, the latter just west of Interstate 5. Rohr Industries, a manufacturing, research and development firm, is just north of the utility complex on the bayfront.

Most of the total drainage basin east of Interstate 805 is rural. About on-third of this area is under the jurisdiction of the City of Chula Vista and is primarily used or is designated as residential and commercial in the 1990 General Plan. The other two-thirds of the area are unincorporated county lands for which no general development plan has been prepared. Of the 2,000-acre area within the drainage basin west of Interstate 805, 1,700 acres have been developed for urban uses.

The flood plain of Telegraph Canyon Creek contains predominantly residential and commercial development. About 462 single-family residential units, 152 apartment units, 22 commercial establishments, a trailer park, and two schools lie in the flood plain between Hilltop Drive and San Diego Bay. About 84 percent (283 acres) of the 337-acre flood plain in the study area has been developed to urban use.

Population and economic growth in the Telegraph Canyon Creek area has reflected the economic pattern of the San Diego region. Population in Chula Vista is estimated at 90,000 in 1984. Much of this population in or frequently traverses the reach of Telegraph Canyon Creek between Hilltop Drive and Interstate 5, the area most affected by the flood problem. Population in the Telegraph Canyon Creek flood plain area is about 1,400.

3. THE CLIMATE AND STORM CHARACTERISTICS

San Diego and vicinity has a mild subtropical climate with warm winters and relatively cool summers. Along the coast the weather is greatly tempered by the influence of the Pacific Ocean, especially during the summer months.

Mean annual precipitation in the study area ranges from about 9 inches at the coastline to about 11 inches at the head of Telegraph Canyon. Most rainfall occurs between November and April, but wide variations take place in monthly and seasonal totals.

There are three basic types of storms which can affect the study region, although some individual storms may consist of a combination of types.

General winter storms usually occur during the period from November through April, with the greatest frequency and intensity normally occurring from December through March. These storms usually originate over the north Pacific Ocean as the result of the interaction between polar and tropical air masses and move eastward across the North American west coast. This type of storm, which often lasts for several days, reflects orographic influence and is usually accompanied by widespread precipitation in the form of rain, often with snow in the higher elevations.

Local storms can occur at any time of the year, either during general storms or as isolated phenomena. Local summer storms are infrequent along the coast but are not uncommon in the interior mountains. These storms, which normally result from a flow of moist tropical air into the region from the south and east, cover comparatively small areas but result in high-intensity precipitation of durations of three hours or less. Local winter storms can occur in conjunction with a strong cold front or a deep upper level low pressure center and are often imbedded within a general winter storm. Like their summer counterparts, these local winter storms result in high-intensity precipitation for short durations over small areas.

General summer storms have occasionally occurred in southern California during the summer and early fall months, usually in the form of tropical cyclones which originate off the west coast of Mexico and move northward toward California. A tropical storm of near hurricane intensity move onshore around Long Beach, California on 25 September 1939, and a number of other tropical storms have also had significant effects upon Southern California--with the greatest effects most frequently upon San Diego County.

4. STORMS OF RECORD

Little historical information is available regarding floods on the major rivers of San Diego County, and almost no information is available regarding floods on any of the smaller streams prior to the mid-20th Century. Recorded runoff data for Telegraph Canyon Creek was non-existent until mid-1973 when a stream gage was installed at one downstream crossing. Brief descriptions of the more notable storms and floods which have occurred in the general vicinity, are given in the following paragraphs.

A. STORMS AND FLOODS OF 14-19 AND 24-29 JANUARY 1916. The entire month of January 1916 was characterized by an unusually persistent series of intense Pacific storms. The heaviest storm period occurred from 14 to 19 and 24 to 29 January, the second of which produced the largest flood of the 20th Century on the San Diego River. Precipitation in the 14-19 January storm ranged from less than 4 inches along the coast south of San Diego to over 21 inches in the higher mountains of the County. In the 24-29 January storm, rainfall varied from 2.8 inches at the San Diego rain gage to more than 19 inches in the higher mountains, with about two-thirds of the total storm precipitation occurring during a 12 hour period of 27 January. The very high intensities of the 24-29 January storm, coupled with the saturation of the soil by the 14-19 January storm, resulted in highly destructive floods on the San Diego River in Mission Valley, as well as elsewhere.

   At least two dams, Sweetwater Dam and Lower Otay Dam, were severely damaged or destroyed by flood waters.

B. STORM AND FLOOD OF 10-17 FEBRUARY 1927. The storm of 10-17 February 1927 was general over all of California. It began on 10 and 11 February and became more intense from 14 to 17 February as a series of storms moved eastward across California at low latitudes. The maximum 24-hour rainfall (ending 2000 16 February) varied from 1.7 inches at the San Diego recording gage to 13.0 inches at Cuyamaca in the interior mountains.

C. STORM AND FLOOD OF 3-4 MARCH 1943. General rainfall of moderate to heavy intensity occurred over all of Southern California from 3 to 6 March 1943, as a deep subtropical Pacific storm moved slowly onto the coast at low latitudes. However, it was a very intense local storm that occurred in the foothills of Los Angeles County between 2200 hours on 3 March and 0100 hours on 4 March which is the most significant feature of the storm period. This thunderstorm resulted in short duration precipitation of near record breaking magnitude for the Southern California coastal region. The cloudburst apparently began, in the midst of a light to moderate general rain, over the southern part of Los Angeles and moved northeastward at approximately 7 miles per hour to the San Gabriel Mountains. The highest observed intensities occurred at the Sierra Madre - Carter station, where maximum 15-, 30-, 60-minute, and 3-hour intensities of 5.5, 3.6, 2.7, and 1.1 inches per hour, respectively, were recorded.

The storm has been researched in great detail and serves as a basis for the March 1967 report "Generalized Standard Project Rainflood Criteria for Southern California Coastal Streams," prepared by the Hydrologic Engineering Center of the Corps of Engineers.

Runoff from the March 1943 storm was moderate to heavy from local drainages where high precipitation intensities occurred, but few quantative measurements are available from these areas.

D. STORM AND FLOOD OF 8 MARCH 1968. The storm of 8 March 1968 was general over all of Southern California. It resulted from the passage of a strong cold frontal system across the region from out of the northwest. The maximum 24-hour precipitation in San Diego County ranged from 1 inch along the coast to as much as 4 inches in the mountains. However, it was the short-term (30-minute to 3-hour) local rainfall intensities associated with the immediate cold front passage which produced the greatest flooding. Various official and unofficial reports of precipitation amounts during the morning hours of 8 March include: 1.9 inches in 30 to 45 minutes (a rate of 2.5 to 3.8 in/hr) at the Chula Vista municipal golf course, 2.4 inches in 2 hours (1.2 in/hr) in south Chula Vista (reported by a local resident), and 3.15 inches in 3 hours (1.05 in/hr) in Bonita (reported by a regular U. S. Weather Bureau observer).

This local storm of 8 March 1968 is of significance to south coastal San Diego County in that its 30-minute to 3-hour intensities are the greatest of record in that region. Since there was only one recording rain gage (San Diego Lindbergh Field) within the general vicinity, and no recorders within the central area of the local cloudburst, a complete and accurate depth-area-duration analysis of this local storm is impossible.

5. STREAM CAPACITY

Telegraph Canyon Creek downstream from Interstate 805 is limited in capacity. From Hilltop Drive to 4th Avenue, the capacity of the existing channel ranges from 500 cubic feet per second to 1,000 cubic feet per second; from 4th Avenue to Interstate 5, the capacity ranges from 200 cubic feet per second to 500 cubic feet per second.

The maximum capacity of the existing creek downstream from Interstate 5 is about 700 cubic feet per second with a velocity of 6 feet per second.

These figures compare most unfavorably with the 100-year peak flood discharge of 3100 cubic feet per second under current conditions in the vicinity of I-5 freeway. Standard Project Flood peak discharge at the same point is 6,200 cubic feet per second.

Flood problems result from floodwaters exceeding the capacity of the stream channel and existing culverts and overflowing onto adjacent residential, commercial, and industrial properties. The creek channel that might have been adequate to convey intermittent floodflows when Chula Vista was primarily an agricultural community is inadequate in its present environment. Under present conditions, the inhabitants, as well as the developments in the flood plain of Telegraph Canyon Creek, would continue to be in jeopardy in times of high floodflows. Due to increased development in the Telegraph Canyon Creek drainage area, the potential for flooding will increase. A recent flood in January 1979 resulted in flood damages as a result of a flood discharge of less than a 5-year event.

It was recognition of this gross inadequacy that the County of San Diego and the City of Chula Vista sought the aid of the Corps of Engineers in providing works along Telegraph Canyon Creek to protect existing and future development.

6. RUNOFF CHARACTERISTICS

Because climatic and drainage area characteristics are not conducive to continuous flow, little streamflow occurs except during and immediately following rains. Runoff increases rapidly in response to rainfall excess.

Little streamflow occurs in Telegraph Canyon Creek except during and immediately following rains. Local storms occur throughout the year, either during general storms or as isolated phenomena. These storms often result in high intensity precipitation for short durations over small areas. This combination of circumstances, along with ongoing upstream development results in an ever-increasing frequency and severity of flooding in the basin. Like much of Southern California Telegraph Canyon Basin is faced with a feast or famine runoff situation.

7. FLOODING HISTORY

Almost no information is available regarding floods in the Telegraph Canyon Creek area inasmuch as very little development existed in the area prior to 1950, and no major floods have occurred in the area since that time. The Harbor Side-Castle Park area, which borders the south side of the creek near the lower end, sustained considerable damage during the flood of 1968. The storm produced the greatest recorded short-term rainfall intensities in the south coastal San Diego County area. The resultant flood produced an estimated peak flow of 60 cubic feet per second on the south tributary to Telegraph Canyon Creek. About 63 homes and 28 apartments were flooded and 26 streets were impassable or hazardous to traffic in the City of Chula Vista. The flood damages within the city were estimated at $106,000. No separate estimate of flood damages along the main stem of Telegraph Canyon Creek is available.

A more recent flood occurred in January 1979. About 3 businesses, 4 homes, and an apartment complex sustained flood damages from Telegraph Canyon Creek floodwaters. Although the flood discharge was less than a 5-year flood event, damages sustained were approximately $20,000.

Major floods have occurred in San Diego County in 1862, 1884, 1916, 1926, and 1937. The 1862 flood was probably the largest of record in the county, but the 1916 flood was the most destructive. The 1916 flood caused damages to all important highway and railroad bridges and washed out many miles of track and roadbed. For nearly a month, all supplies had to be brought into San Diego by ship. All communication with areas outside the county was by wireless after all telephone and telegraph lines failed. Almost all water supply systems were damaged, including damage to dams, watermains, pipelines, irrigation ditches, wells, and pumps. The greatest damage occurred to farmland improvements. Most of the agricultural lands were severely damaged. The 1927 flood caused extensive damage to buildings, roads, bridges, utilities, land, and crops in San Diego County. Flooding occurred on most streams in the county.

Because there are no historical data available that were directly applicable to the Telegraph Canyon area, regionalized flood frequency studies in San Diego County were used in the Corps' study and theoretical determinations were made to determine the areas subject to overflow and to determine resultant flood damages on the occurrence of floods.

8. VALUE OF DEVELOPMENT AND POTENTIAL DAMAGES

The value of property in the overflow area provides a basis for determining the probable damages that would occur during selected floods. Table 1 presents property values in the standard project flood overflow area. The figures are based on 1983 development conditions. Even though the project that is being considered provides 100-year flood protection, the standard project flood overflow area is significant when assessing the residual damages expected from a standard project flood with 100-year protection already in place.

TABLE 1

Value of damageable property in standard project flood overflow area along Telegraph Canyon Creek from above Fourth Avenue to San Diego Bay (in thousands of April, 1983 dollars)

LAND USE	VALUE
Residential	32,681
Commercial	5,038
Industrial	-
Public	1,720
Total	39,439

The standard project and 100-year floods would cause extensive damages to existing properties. Table 2 presents damages to the property in the overflow areas.

TABLE 2

Damages to existing property in the standard project flood, 100-year flood, and 50-year flood overflow areas along Telegraph Canyon Creek from above Fourth Avenue to San Diego Bay (in thousand of April, 1983 dollars)

LAND USE	DAMAGES		
	SPF	100-Yr.	50-Yr.
Residential	7,980	4,260	2,755
Commercial	951	281	182
Public	872	623	448
Parks and Channels	31	10	3
Emergency Admin.	40	20	12
Total	9,874	5,194	3,400

The attached plates 3 and 4 dramatically illustrate the reduction in area of flooding from a 100-year storm which will ensue through the construction of this project.

9. THE SELECTION PROCESS AND THE PLAN

A Citizens Advisory Committee was formed including representation by area residents, business, Planning Commission and so forth. This group of the County of San Diego and the Corps of Engineers and after many months of effort recommended conceptual Plan M. That plan was subsequently endorsed by the City and the County and now forms the basis of the proposed project for which funding is sought.

The selected plan would consist of (1) a 0.7 mile-long rectangular concrete-lined channel from a point about 500 feet upstream from 4th Avenue (near 3rd Avenue) to 0.3 miles upstream from Interstate 5; (2) a 0.3 mile long section comprising double 10x12-foot boxes of covered channel connecting the rectangular channel to the existing 0.2-mile culvert under Interstate 5, which will be incorporated into the project; and (3) a 0.3 mile-long concrete trapezoidal channel downstream fron Interstate 5; and (4) a 0.1 mile-long earth-bottomed trapezoidal channel leading to San Diego Bay. This plan would provide protection from a 100-year flood. Total estimated cost (April, 1983 price levels) as prepared by the Corps of Engineers is $5,390,000.

10. CONCLUSION

While Southern California is blessed with abundant sunshine, it is also the victim of severe storms and flooding. The Telegraph Canyon basin has experienced rapid development in its lower reaches. It is readily apparent that the natural channel which was adequate to the needs of a primarily rural community is no longer adequate. This inadequacy poses a real threat to the millions of dollars in development which exists in the flood plain of Telegraph Canyon Creek.

Construction of the proposed project would neutralize that threat insofar as a 100-year storm is concerned. It would also significantly reduce the damage to be expected from a standard Project Flood.

A genuine need exists as well as a practical, justifiable solution.

RESOLUTION NO. 11292

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA ENDORSING THE TELEGRAPH CANYON CREEK FLOOD CONTROL PROGRAM UNDER CONSIDERATION BY THE U. S. ARMY CORPS OF ENGINEERS

The City Council of the City of Chula Vista does hereby resolve as follows:

WHEREAS, Act of Congress, Public Law 228, 77th Congress, approved August 18, 1941, authorized the Chief of Engineers to take surveys for flood control in the drainage areas of all streams in San Diego County, California, flowing into the Pacific Ocean; and

WHEREAS, a flood-control project for Telegraph Canyon Creek, San Diego County, California, is being considered in documents under preparation by the District Engineer, U. S. Army Engineer District, Los Angeles, at Los Angeles, California, for flood control along said creek; and

WHEREAS, protection against flood damage would be provided to property along the one mile reach of Telegraph Canyon Creek downstream from Fourth Avenue to San Diego Bay, all in the City of Chula Vista and the County of San Diego, California, by channel improvement under consideration for construction by the United States; and

WHEREAS, Section 3 of Public Law 738, 74th Congress, provides that no money appropriated shall be expended on the construction of any project until States, Political Subdivisions thereof, or any other responsible Local Agencies have given assurances satisfactory to the Secretary of the Army that they will assume certain enumerated obligations; and

WHEREAS, Article 4, Chapter 7, Part 2, Division 2, Title 3 of California Government Code commencing with Section 25680 and California Government Code Section 6500 et. seq. authorizes the County of San Diego to cooperate with the United States in the construction of flood control projects;

NOW THEREFORE, BE IT RESOLVED by the City Council of the City of Chula Vista that it go on record reaffirming its support of the Telegraph Canyon Creek flood control program under consideration by the U. S. Army Engineers; and

BE IT FURTHER RESOLVED, that the Board of Supervisors of the County of San Diego, California, are hereby requested to give the assurances required by the U. S. Army Engineers to provide the local cooperation necessary for the construction of the project; and

BE IT FURTHER RESOLVED, that it declares it a policy and intent of this Council to enter into negotiations prior to actual construction to determine a mutually equitable apportionment of costs to each local agency including the County, to reimburse the County of San Diego as appropriate for betterments in highways, roads, streets, bridges, recreational facilities, utilities and irrigation and drainage facilities for which the State or Federal agencies declare the costs beyond their responsibility.

BE IT FURTHER RESOLVED, that the City Clerk of the City of Chula Vista be, and is hereby directed to forward a certified copy of this Resolution to the Board of Supervisors, County of San Diego.

Presented by	Approved as to form by
John P. Lippitt	George D. Lindb
John Lippitt, City Engineer	George D. Lindberg, City Attorney

SWEETWATER RIVER FLOOD CONTROL PROJECT

Speech by Mayor Gregory R. Cox (Chula Vista, California) to Congressional Committee re Sweetwater River Flood Control Project

The Sweetwater River basin is 219 square miles in area and extends some 40 miles from the Laguna Mountains to San Diego Bay. In its lower reaches, it traverses areas under the jurisdictions of Chula Vista, National City, the County of San Diego, and the San Diego Unified Port District.

A combination of factors including development, siltation, and vegetation growth have in recent years tended to restrict the flow of flood waters which periodically occurs. This tendency simply heightens the impact of any severe storms which strike the basin. Likewise, upstream development has reduced the ability of the basin to absorb storm waters, thereby increasing the liklihood of downstream flooding. Until recent years, the extent of flooding in lower Sweetwater Valley was of concern primarily because of the possibility of severing the roadways which cross the valley. Development at the time was essentially rural. However, that situation has grown more complex, and a major storm now poses a significantly greater threat to life and to private property than previously existed.

The fact that Southern California can be subjected to severe storms and flooding has been well documented by the Corps of Engineers. The Sweetwater River itself has a long history of intermittent flooding. The Standard Project Flood for the lower reach has been determined to be 60,000 cubic feet per second. That's an impressive flow in a "river" which is bone dry except for a few days each year.

The project which is proposed includes flood control facilities as well as freeway construction (on the flood control dikes). This joint project will reduce the cost of each of the component facilities. Funding for the freeway facilities has been committed and most of the right-of-way acquisition required of local agencies has been completed.

The dual purpose nature of the proposed project will be immense benefit to residents in the vicinity of Chula Vista through elimination of flood hazards and through safer and more convenient transportation.

The Corps of Engineers estimates the value of development within the standard project flood overflow area to be about $115,000,000. The extent of flood damage projected to occur as the result of a standard project flood is about $33,000,000 which figure exceeds the total estimated first cost of the project.

The Sweetwater River Project is needed. It has been comprehensively studied by State and Federal authorities. It is of such cost and magnitude as to be accomplished only through the cooperative effort of local, State and Federal governmental units. Only a Federal commitment is missing.

We request that you endorse this project so vital to the health, safety and welfare of Chula Vista and adjacent areas.

Project Authorization

The Congressional authority for the construction of the Sweetwater River Project for flood control is contained in the Public Works - Flood Control Act approved August 13, 1968 (Public Law 90-483, 90th Congress, 2nd Session).

Location of Project and Tributary Area

The Sweetwater River drainage area (about 219 square miles) is in the southwestern part of San Diego County in the State of California, approximately 8 miles north of the United States-Mexican border. (See pl. 1.) The drainage area is elongated in shape, with a maximum northeast-southwest length of about 40 miles and a maximum width of about 8 miles. The terrain is characteristic of the general coastal region, with dominant peaks and ridges rising 1,000 to 3,000 feet above the valley floors.

Description of Authorized Plan

The plan of improvement presented in the project document (authorized by Congress August 13, 1968) consisted of a combined flood control channel and highway project, with the channel flanked on both sides by a freeway along much of its length. The proposed plan features:

a. Channel. The recommended plan of improvement includes channel enlargement and realignment of the existing river from a point about 300 feet upstream from the Interstate Route 805 interchange to San Diego Bay, a distance of about three miles. The improved channel and levees are designed to contain a standard project flood discharge of 60,000 cubic feet per second. The channel would have a bottom width that varies from 208.9 to 250 feet.

b. Levees. The levees, an extension of the channel side slopes, would have a 20-foot width. Maximum levee height would be about 10 feet.

c. Bridge construction. Construction would include two utility bridges, two railroad bridges and three street bridges.

d. Riprap protection. The maximum channel velocities dictate riprap protection on the side slopes up to the top of the levees.

e. Local side drainage provisions.

f. Utility relocations.

g. Upper Paradise Creek diversion channel.

Hydrometeorological Characteristics

A marked feature of the climate in the drainage area is the wide variation in temperature within a short distance. In the coastal areas, prevailing winds and weather are tempered by the Pacific Ocean, resulting in usually cool summers and winters. Summer days are much warmer and winter nights noticeably cooler in the interior part of the drainage area than in the coastal area. Prevailing winds are from the northwest. During the fall, hot dry winds from the east occasionally blow for several days at a time, causing unusually high temperatures in the area.

The 112-year mean annual precipitation for the drainage area ranges from about 10 inches near the coast to about 35 inches in the higher mountainous sections, and averages about 18 inches over the total drainage area. Rainless periods of several months during the summer are not uncommon. Snow falls occasionally in the higher elevations of the area but seldom remains for more than a few days and is not considered an important contributary factor to runoff.

Three types of storms produce precipitation in the Sweetwater River Basin: general winter storms, local storms, and general summer storms.

General winter storms usually occur during the period from November through April, with the greatest frequency and intensity normally occurring from December through March. These storms usually originate over the north Pacific Ocean as the result of the interaction between polar and tropical air masses and move eastward across the North American west coast. This type of storm, which often lasts for several days, reflects orographic influence and is usually accompanied by widespread precipitation in the form of rain, often with snow in the higher elevations.

Local storms can occur at any time of the year, either during general storms or as isolated phenomena. Local summer storms are infrequent along the coast but are not uncommon in the interior mountains. These storms, which normally result from a flow of moist tropical air into the region from the south and east, cover comparatively small areas but result in high-intensity precipitation of durations of three hours or less. Local winter storms can occur in conjunction with a strong cold front or a deep upper level low pressure center and are often imbedded within a general winter storm. Like summer counterparts, these local winter storms result in high-intensity precipitation for short durations over small areas.

General summer storms have occasionally occurred in southern California during the summer and early fall months, usually in the form of tropical cyclones which originate off the west coast of Mexico and move northward toward California. A tropical storm of near hurrican intensity move onshore around Long Beach, California on 25 September 1939, and a number of other tropical storms have also had significant effects upon Southern California--with the greatest effects most frequently upon San Diego County.

Runoff Characteristics

Little streamflow occurs except during and immediately after rains because climatic and drainage area characteristics are not conducive to continuous runoff. High-intensity storms, especially those following other storms, in combination with the effects of steep gradients, fires, and full reservoirs, result in intense floods in the lower river.

Standard Project Flood

Standard project storm. The storm of January 21-24, 1943, which centered in the San Gabriel Mountains northeast of Los Angeles, was transposed and centered over the drainage basin. This storm was found to be the storm with potentially the most critical flood-producing characteristics and would reasonably be expected to occur over the drainage area.

Floor regulation at upstream dams. With both dams in the basin being water-conservative dams, the reservoirs were assumed full to spillway crest at the beginning of the standard project flood, and the conduit outflows were assumed negligible.

Adequacy of standard project flood. The standard project flood peak discharge for the entire recommended channel improvement is 60,000 cubic feet per second. The adequacy of the standard project flood is difficult to determine by comparison with recorded or estimated peak discharges because of the lack of information on the reach of the Sweetwater River under consideration. The largest known recorded flood peak on the Sweetwater River occurred on January 27, 1916, at the Sweetwater Dam. A peak discharge of 45,500 cubic feet per second for a one-hour period (250 cubic feet per second per square mile of drainage area) was recorded. Loveland Dam had not yet been built at that time, but had it been built, the peak discharge would have been about the same as there was enough anticedent runoff to fill the reservoir. The standard project flood, which reflects the effect of two upstream dams, results in a runoff rate of 270 cubic feet per second per square mile of drainage area for drainage area of 219 square miles.

Existing Channel Conditions

The existing Sweetwater River in the area of the recommended improvement is a poorly defined channel in a broad flood plain varying in width from about 1,200 to 2,000 feet. No improvements have been made in the existing channel to increase its haudraulic capacity, but some filling that has been done in the lower flood plain would tend to restrict major floodflows. The downstream end of the channel is substantially a tidal flat.

Flood Problem

A serious flood problem exists in the Lower Sweetwater River Valley (see pl.2). Major damaging floods have been recorded in the basin since 1892, although their effect has been substantially reduced since construction of Sweetwater Reservoir in 1888 and Loveland Reservoir in 1945. The flood of

1862 was said to have been the largest flood in the memory of the inhabitants, however, no precise information on the quantity of flow is available. Other floods resulting in damage occurred in 1884, 1916, 1927, and 1937. A newspaper description of the 1884 flood read, "a solid mass of water 50-100 feet wide, 4-5 feet deep destroyed everything in its path." The 1895 flood was responsible for two deaths in the Sweetwater Valley. The 1916 flood breached Sweetwater Dam. A peak flow into the reservoir of 47,600 cubic feet per second was recorded. The spillway was overtopped by 3.5 feet and the right abutment of the dam eroded to a depth of 30 feet below the parapet level. The flow breaching the dam was estimated to reach 80,000 cubic feet per second for a full hour and resulted in one death. The flood of 1927 was almost as large as the 1916 flood. On at least five occasions, floods have destroyed the transportation links across the Sweetwater Valley, isolating the communities to the south from the rest of the nation. Until the 1960's, Sweetwater Valley was an agriculturally based rural area with little development. Consequently, no flood damage surveys are available. Data as to the location of and the amount of flood damage incurred are nonexistent.

Several unusually wet winters in recent years have resulted in flooding within the project area. The presence of the City-constructed earthen dike, significantly lessened the impact of that flooding by confining it to essentially undeveloped lands.

Value of Development Susceptible to Flooding

The value of present development within the standard project flood overflow area amounts to about $115,000,000. Approximately one-third of this amount is within the Paradise Creek area.

Flood depths from the standard project flood along the Sweetwater River range to 10 feet in some areas. At the same present time, within the standard project flood overflow area, there are 87 residences, 73 commercial establishments, and 67 industrial facilities. In addition, 299 mobile homes would be subjected to the substanial flood hazard. The remaining damageable development consists of 45 acres of streets and highways, one public structure, railroad facilities, and parks. Flooding from the 100-year flood also presents a serious threat to the valley. The 100-year flood plan is nearly as large as the standard project flood overflow area and encompasses approximately $80,000,000 in development value. Flooding depths from the 100-year flood range to about 9 feet.

Projected Cost of Damages

The present flood threat to the lower Sweetwater Valley is serious. Should a standard project flood occur to present development, total damages of $32,800,000 may be expected. Damages of $13,800,000 would result from occurrence of the 100-year flood. Floods not only threaten the homes, businesses, and industrial developments, but also disrupt major highways and railroads which cross the flood plain. By combining knowledge of the probability of the occurrence of various floods and the potential damages resulting from the floods, it is possible to predict the potential damages expected to occur on an average annual basis. For the lower Sweetwater Valley, the average annual flood damages expected to occur to the existing development amounts to $591,000.

Justifications for the Recommended Flood Control/Freeway Project

a. The flood control features are justified in their own right on the basis of flood control benefits.

b. The project enables CALTRANS to complete Route 54 in compliance with FIA provisions without incurring the tremendous costs of bridging the 100-year floodway. From this point of view the total costs of the freeway-flood control project are less than that of a single-purpose freeway project.

c. The project provides for economically justified recreation, which would be compatible with the desires of local interests and which would serve as an important link in regional recreational plans.

d. The plan makes use of the right-of-way purchases and relocations that have already been undertaken.

e. The recommended plan retains the complete integrity of the marsh as an ecosystem by incorporating 144 acres of marshland for preservation. This also allows the management of the marshland as a unit and prevents illegal filling and other detrimental use by unauthorized personnel now having free access to the marsh. This plan maintains the existence of two endangered species.

f. If the expenditures of the local interests to date are considered as sunk costs, then the total project cost is reduced by $4,257,500 from $23,049,000 to $18,791,500. On that basis, the benefit-to-cost ratio would increase from 1.1 to 1.4.

g. There is significant flood damage potential in the lower Sweetwater Valley and the project was authorized in 1968 as a combined highway and flood control project with costs allocated between project purposes in accordance with a formal agreement. Highway and non-Federal flood control interests have been faithfully executing their responsibilities under the agreement in the belief that the Federal flood control interest will also honor the agreement once the reporting process is completed and Congress funds construction.

Benefits

Both tangible and intangible benefits will accrue to the project. Tangible benefits would include flood damage reduction, location benefits, savings in floodproofing costs, increased employment, advanced replacements of bridges, and recreation benefits. Intangible benfits would include lessening the risk of loss and life and preservation of wildlife sanctuaries.

The primary economic benefit that will accrue to the recommended plan is the reduction of flood damages in the Sweetwater River overflow area downstream of I-805. Without a project equivalent annual flood damages estimates at $620,000 (3-1/4 percent interest rate) would occur from 1985 to 2085. The proposed project will reduce these flood losses to $48,000 annually. The project is designed to control the standard project flood from Bonita Mesa Road to San Diego Bay.

Location benefits accrue to lands within the floodway which become essentially flood free after construction of the project. Because of the restrictions of the flood insurance program floodway lands are severely restricted in allowable usage. Once the flood hazard is removed these lands are as amenable to development as other flood free lands. The recommended flood control plan for the Sweetwater River would allow development to take place on about 59 acres of land which is presently restricted because of the severity of the flood hazard. Removing the floodway restriction will raise the value of these lands by about $45,000 per acre. For the entire 59 acres, this increase in value would correspond to an annual benefit over the life of the project of $90,000.

The savings in floodproofing costs results from removal of the floodproofing requirements of the national flood insurance program. Without the flood control project, undeveloped lands within the 100-year flood plain fringe could develop only if structures were elevated to the above the level of the 100-year flood. The normal floodproofing procedure would be to use earthfill to accomplish the required elevation of structures. With the flood control project, the requirement for floodproofing is no longer applicable and the savings in cost of floodproofing can be considered a project benefit. Construction of the flood control project would realize an average annual benefit from savings in floodproofing costs amounting to $106,000.

The expenses associated with marsh acquisition for preservation and construction of fish and wildlife facilities, are recommended to preserve the endangered species which live in the marsh. This commitment of resources is not recommended with the intent of realizing a tangible return; the primary benefits associated with marsh preservation are not measurable in dollars.

Construction of the project will result in replacement of several bridges. The existing bridges have remaining economic lives from 15 to 27 years. Replacing these bridges will extend this economic life to 65 years and represents an economic credit. This credit amounts to an average annual amount of $61,000.

Conclusion

The Sweetwater River Flood Control Project involves not only flood control works but a major freeway facility as well. This uncommon concept will permit completion of both facilities at less total cost than if each were to be constructed independently. The overall project will offer the advantages of flood protection as well as more convenient and safer travel to many thousands of residents in the area.

Chula Vista, National City, the County of San Diego and the San Diego Unified Port District will be impacted by the completion of and/or the absence of the overall project.

While Southern California is noted for its sunshine, it also has a history of periodic violent storms and resultant, flooding. The potential for damage to existing development is enormous ($32,800,000 per recent Corps of Engineers report), and poses a genuine threat to properties situated in the flood plain.

The agencies having jurisdiction over the lower reach of the Sweetwater Valley have all vigorously supported a joint freeway/flood control project since its conception. All have participated in years of coordination and cooperation with the Corps of Engineers and CALTRANS. All have made substantial investments in time, effort and hard cash to gain final approval of the proposed joint project.

We have a proven need and practical solution. The next major step is to obtain a commitment of Federal participation.

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CHULA VISTA REAFFIRMING THE CITY'S SUPPORT OF THE I-5/ STATE 54 FREEWAY AND THE SWEETWATER FLOOD CONTROL PROJECT

RESOLUTION NO. 10773

The City Council of the City of Chula Vista does hereby resolve as follows:

WHEREAS, the City of Chula Vista on April 6, 1965 strongly endorsed and supported the Sweetwater River Flood Control Program authorized by Act of Congress, Public Law 228, 77th Congress, as approved on August 18, 1941, and

WHEREAS, the City of Chula Vista, pursuant to said resolution, requested the County of San Diego, California to give those assurances required by the U. S. Army Engineers to provide the local cooperation necessary for the construction of the project, and

WHEREAS, the City Council declared it to be a policy and intent of the Council to enter into negotiations prior to actual construction to determine a mutually equitable apportionment of costs to each local agency including the County, to reimburse the County of San Diego for betterments in highways, roads, streets, bridges, utilities and irrigation and drainage facilities for which the state or federal agencies declare the costs beyond their responsibility, and

WHEREAS, said project to be constructed in conjunction with State Highway 54 would provide protection against flood damage to property along the 3.2 mile reach of the Sweetwater River downstream from Interstate 805 Freeway to San Diego Bay, all in the cities of National City and Chula Vista, and the County of San Diego, California by levee and channel improvements under consideration for construction by the United States, and

WHEREAS, the City of Chula Vista has strongly supported the construction of such joint freeway flood control project since 1964, and

WHEREAS, said project is vital to serve the freeway needs of the South Bay area and to relieve the extreme congestion encountered daily on the I-5 Freeway between Chula Vista and National City and will correct many of the flooding problems which have been frequently inflicted upon the Sweetwater Valley, and

WHEREAS, the City has previously agreed to mitigate certain environmental concerns by (a) agreeing to delete the ramps from State Rouce 54 to Tidelands Avenue and (b) delete the construction of the Tidelands Avenue Bridge across the channel, from this project, and

WHEREAS, the City Council on October 2, 1979 conducted a public hearing on the support of the flood control project and by a 4-1 vote accepted the staff report in support of the joint freeway flood control project.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Chula Vista does hereby reaffirm its support of the I-5/State 54 Freeway and the Sweetwater Flood Control Project and reiterates its previously declared policy and intent in regard to said project.

BE IT FURTHER RESOLVED that the City Clerk of the City of Chula Vista be, and she is hereby directed to forward a certified copy of this resolution to the Board of Supervisors of San Diego County and to the U. S. Army Corps of Engineers.

Presented by	Approved as to form by
John P. Lippitt	George D. Lindberg
John P. Lippitt, City Engineer	George D. Lindberg, City Attorney

ADOPTED AND APPROVED by the CITY COUNCIL of the CITY OF CHULA VISTA, CALIFORNIA, this 9th day of February, 198 2, by the following vote, to-wit:

AYES: Councilmen Campbell, McCandliss, Scott, Cox, Gillow

NAYES: Councilmen None

ABSENT: Councilmen None

Gregory R. Cox

Mayor of the City of Chula Vista

ATTEST Jennie M. Fulasz

City Clerk

SAN JOAQUIN COUNTY AREA PROJECTS

STATEMENT OF GEORGE BARBER, CHAIRMAN, SAN JOAQUIN COUNTY BOARD OF SUPERVISORS

ACCOMPANIED BY EVELYN L. COSTA, SUPERVISOR

Mr. DODSON. Next, it is my pleasure to introduce Chairman George Barbar of the San Joaquin County Board of Supervisors.

Mr. BARBER. Mr. Chairman, it is a pleasure to be with you this afternoon as in past years. I am representing several organizations today, currently chairman of the board of supervisors representing the county, representing the Stockton East Water District. I filed a statement on their behalf and I would like to have that included in the record.

In addition to that, I also serve as president of the local water users association and president of Cosumnes River Water and Power Authority so I have a whole lot of functions to talk about today. I am going to summarize it real quick so that we won't take up a long period of time.

We are supporting the projects itemized by Congressman Shumway that dealt with the port study, the Stanislaus River, the recreation area, the dam enlargement, the ship channel, the interim study, Littlejon River, San Joaquin River, and New Melones studies.

We would like to thank you very much for this opportunity to appear before you this afternoon.

Senator MATTINGLY. Thank you. That is the fastest statement I have ever heard.

[The statements follow:]

STATEMENT OF GEORGE L. BARBER, CHAIRMAN OF THE BOARD OF SUPERVISORS, SAN JOAQUIN COUNTY, CALIF.

My name is George L. Barber. I am Chairman of the Board of Supervisors of the County of San Joaquin, California. I am accompanied by Mrs. Evelyn Costa, Member of the Board. A resolution of the Board authorizing this presentation is attached.

In summary, the County of San Joaquin requests that the following appropriations be made to the Corps of Engineers and the Bureau of Reclamation for the fiscal year between October 1, 1984, and September 30, 1985, for projects of concern to the County:

Corps of Engineers - Construction	
New Melones Project	$ 4,500,000
Stockton Ship Channel	$18,400,000
Aquatic Plant Control - San Joaquin River Delta	$ 100,000
Lower San Joaquin River Clearing and Snagging	$ 2,000,000
Corps of Engineers - Surveys	
San Joaquin River Basin Comprehensive	$ 445,000
Cosumnes River	$ 200,000
Bureau of Reclamation - Construction	
Auburn-Folsom South	$ 5,250,000
Bureau of Reclamation - Loan Program	
Oakdale Irrigation District Loan	$ 6,500,000
Bureau of Reclamation - Investigations	
New Melones Studies	$ 550,000
Delta Support Studies	789,000
Construction	(381,000)
Operation and Maintenance	(408,000)

DETAILED COMMENTS

Corps of Engineers - Construction

New Melones Project............................$4,500,000

The New Melones Dam, Reservoir and Power Plant are complete for operational purposes and all State permits necessary to permit full, authorized operation are in the Bureau's hand. In both the last water year and in the current water year, the Project has provided flood control, fishery, water quality and power benefits and these and irrigation benefits are assured for the future.

The President's budget provides $4,500,000 to advance construction of minimal recreation facilities in the reservoir area. We believe the full recreation facilities in the reservoir area and the access, recreational and spawning-bed improvements in the lower river area, all as authorized, should be completed promptly so the Project can serve all its authorized purposes and can maximize its benefits. We expect to urge the California Water Commission, at its April meeting, to approve the original lake and lower river recreational program and to inform your Subcommittee of that approval.

Stockton Ship Channel..........................$18,400,000

Until the San Francisco Bay-Stockton Channel Project is completed an increasing percentage of deep draft ocean vessels will be unable to reach Upper Bay and Stockton ports, or, alternatively, must load lightly which increases shipping costs greatly and reduces the efficient operation of the ports. Construction work on the channel has begun and the Board of Supervisors urges that construction of the channel proceed as rapidly as possible. The President's budget contains the amount requested $18,400,000.

Aquatic Plant Control..........................$ 100,000

Substantial success has been achieved in controlling the massive water hyacinth blockage of Delta channels in and near the San Joaquin River arm of the Delta. These plants, which threatened to block all Delta channel navigation, should be completely eradicated.

Lower San Joaquin River Clearing and Snagging...$ 2,000,000

Much of the Lower San Joaquin River channel upstream of Mossdale has become choked with sediment and debris as a result of upstream erosion and past floods. Congress has authorized the Corps of Engineers to perform clearing and snagging on the San Joaquin River from Stockton, California, to Friant Dam at an estimated cost of $5,000,000. The sum of $2,000,000 is needed to carry on the channel clearing program so the river can carry its designed flood flows without endangering adjacent properties. Although the budget does not include funds for this essential work, we support the California Water Commission recommendation that a $2,000,000 program be carried out vigorously in F.Y. 1984-85.

Corps of Engineers - Surveys

San Joaquin River Basin Comprehensive...........	$ 445,000
Cosumnes River.................................	200,000

San Joaquin County supports the recommendation of the California Water Commission that $445,000 be appropriated for the San Joaquin River Comprehensive Basin Survey as recommended in the budget. The County is particularly interested in the portions of the survey which deal with the river channel upstream of the Delta.

On the Cosumnes River, a 4-County Joint Power Agency known as the Cosumnes River Water and Power Authority has been formed by the Counties of San Joaquin, Sacramento, Amador, and El Dorado. The Joint Power Agency has retained engineers and is conducting a comprehensive water-power-flood control-recreation study of Cosumnes River. Concurrent with the engineering studies being carried out by the Authority, it is essential that the Corps have funds with which to review the flood control potentials of any project that may be developed by the Authority.

Bureau of Reclamation - Construction

Auburn Dam and Folsom South Canal..............$5,250,000

The President's budget contains $3,500,000 for work in the Auburn Dam area in fiscal year 1984-85. Currently the Bureau of Reclamation is conducting studies preliminary to discussions with various non-Federal agencies relating to partnership participation in the Auburn Project. Preliminary reports by the

Bureau indicate the authorized Project is economically justified when its physical facilities are modified in accordance with revised designs. Also, during the fiscal year, the Bureau will need to carry on discussions with the United States Forest Service, the State Department of Parks and Recreation and others. The water supplies which can be made available by Auburn Dam and Reservoir are essential to resolution of the minimum flow problems on the Lower American River and to the provision of water for use in the Folsom South Canal service area.

The most important of the Auburn-related programs is Folsom South Canal, which now ends about 10 miles north of the San Joaquin County line. Currently San Joaquin County, through its Flood Control and Water Conservation District, is heading up a comprehensive groundwater management study of the portion of the County that would be served with water from the Canal. This study, utilizing some $400,000 in locally contributed funds, will enable the several districts within the area to plan on conjunctive use of groundwater in sustaining the presently developed agricultural area which is primarily in pasture, vineyard, row, and orchard crops.

The County believes that the Bureau should now be making studies parallel to those on Auburn Dam looking toward eventual extension of the Canal into the County to deliver supplemental water. Upon completion of the Environmental Impact Statement service area studies will be required in support of contracts for the supplemental water.

Bureau of Reclamation - Loan Program

Oakdale Irrigation District Loan..............	$ 6,500,000

The Bureau and O.I.D. expect to execute their loan contract this month. $1,500,000 is available this fiscal year which the district will use in completing its final design and specifications. The budgeted $6,500,000 will be used to initiate construction on the system improvements. It is expected that, when completed, the system will be far more efficient and will conserve much of the water now unavoidably lost.

Bureau of Reclamation - Investigations

New Melones Studies............................	$ 550,000

The Bureau has executed contracts with seven local agencies for the use of New Melones irrigation and municipal water supplies. These contracts involve over 90 percent of the total long-term yield of the Project and over 70 percent of the immediate yield. There will be need for the Bureau to continue service area studies with additional contracting parties to make use of the remaining long-term and interim water supplies. While the President's budget contains $150,000 for these purposes the County of San Joaquin believes studies of conveyance facilities and of water use require more concentrated efforts if maximum use of New Melones water is to be achieved.

Delta Support Studies..........................	$ 789,000

A wide variety of analyses and studies are required in the Sacramento-San Joaquin Delta in connection with existing and potential problems. Many of these programs involve cooperation with the State of California since both the State Water Project and the Federal Central Valley Project use the Delta as a means of conveying water across the Delta to their export pumping plants.

The State expends large sums in studying the effects of cross-Delta flows on water quality in the Delta and on export waters and in studying the effects of Project operations on fishery resources. The Bureau should have comparable funds with which to discharge its responsibilities toward the Delta.

We understand the President's budget amount of $789,000 is derived from $408,000 in operation and maintenance funds and $381,000 in construction funds.

BEFORE THE BOARD OF SUPERVISORS OF THE SAN JOAQUIN COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, STATE OF CALIFORNIA

R-84-314

RESOLUTION APPROVING STATEMENTS TO BE SUBMITTED TO SUBCOMMITTEES ON ENERGY AND WATER DEVELOPMENT OF HOUSE OF REPRESENTATIVE AND SENATE APPROPRIATIONS COMMITTEES

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WHEREAS, the Subcommittee on Energy and Water Development of the Committee on Appropriations of the United States House of Representatives and the Subcommittee on Energy and Water Development of the Committee on Appropriations of the United States Senate will each separately hold hearings on April 5, 1984, on the budgets of the U. S. Army Corps of Engineers and the Bureau of Reclamation; and

WHEREAS, numerous projects contained in those budgets are of benefit to San Joaquin County;

NOW, THEREFORE, BE IT RESOLVED that Supervisors George L. Barber and Evelyn Costa are hereby authorized and directed to appear before the aforementioned congressional subcommittees in Washington, D. C., in support of the appropriations for pending flood control, navigation, and water supply projects which will be of benefit to San Joaquin County and to present the attached statements.

PASSED AND ADOPTED this 20th day of March, 1984, by the following vote of the Board of Supervisors, to wit:

AYES: SUPERVISORS YOSHIKAWA, WILHOIT, COSTA, BARBER

NOES: NONE

ABSENT: SUPERVISOR ALVA

George L Barber

GEORGE L. BARBER, Chairman
Board of Supervisors
San Joaquin County Flood Control
and Water Conservation District
State of California

ATTEST: JORETTA J. HAYDE
Clerk of the Board of Supervisors of the San Joaquin
County Flood Control and Water
Conservation District, State
of California

By (Seal)
Deputy Clerk

STATEMENT OF RICHARD BOZZANO, PRESIDENT, BOARD OF DIRECTORS, STOCKTON-EAST WATER DISTRICT

I am writing on behalf of the Stockton-East Water District to support the following Corps of Engineers and Bureau of Reclamation projects:

1.	New Melones recreation facilities	$ 7,500,000.
2.	Deepening of the Stockton Ship Channel	18,400,000.
3.	Aquatic plant control	100,000.
4.	San Joaquin River Basin survey	445,000.
5.	Auburn-Folsom South	5,250,000.
6.	Delta support studies	789,000.
7.	New Melones service area studies	550,000.
8.	Oakdale I.D. loan	6,500,000.
9.	Littlejohn Creek flood control studies	400,000.
10.	Stanislaus River Recreation and Fishery Improvements	500,000.

Stockton-East Water District was one of the first to contract for New Melones water, continues to support the Folsom South Canal, and is currently working on two important local water projects; 1) The South Gulch Water Conservation and Hydroelectric Project, and 2) The Farmington Canal. Both would be funded (we hope) with PL-984 Bureau loans.

We have just applied for a preliminary permit from FERC for the South Gulch Project, total project cost $60± million.

We have authorized a joint-filing (with Central San Joaquin Irrigation District) of a "Notice of Intent" to apply for a Bureau loan to fund the Farmington Canal, required for conveyance of New Melones water. This project will cost $37± million.

Hopefully, we will be in a position to request that Federal appropriations be made for both projects, in Fiscal 1986-1987.

Because we are so late in writing, we are asking San Joaquin County Board of Supervisors Chairman George Barber to present our letter to the Senate and House Committees on April 5, 1984.

SANTA ANA RIVER FLOOD CONTROL PROJECT

STATEMENT OF HARRIET WIEDER, SUPERVISOR, ORANGE COUNTY, CALIF.

ACCOMPANIED BY:

CARL NELSON, DIRECTOR OF PUBLIC WORKS, ORANGE COUNTY ENVIRONMENTAL MANAGEMENT AGENCY

GEORGE OSBORNE, SANTA ANA RIVER FLOOD PROTECTION AGENCY

Mr. DODSON. Next, it is my pleasure to introduce Supervisor Harriet Wieder of Orange County.

Ms. WIEDER. Thank you very much.

I am chairman of the board of supervisors of Orange County, Calif. After 20 years we are still appearing before congressional and Senate committees asking for consideration of what has already been declared to be the worst potential flood threat west of the Mississippi and that was identified over 20 years ago. We are not seeking money from the Federal Government as we on the local level are not prepared to take ourselves and that we have already invested in.

The Santa Ana River main stem project of which I speak, it has been 14 years since the Corps has identified it a flood storage deficiency in the dam which then brought to the attention of the world, if you will, that this was this terrible potential threat.

We are asking for an additional allocation of $1 million in order to accomplish what the Congress has mandated us to do and if we do not get that authorization it is going to stop the whole project, if not delay it or hold it up. In addition, we are asking for consideration on the Santa Ana River basin and Orange County, Calif., project. Last year in 1983 in that part of the world of Orange County the flood damages exceeded $13.5 million. We have already invested over $130,000 in project engineering and we are asking for $550,000 to ensure that what happened last year does not happen again.

Thank you for your consideration.

Senator MATTINGLY. Thank you.

[The statements follow:]

STATEMENT OF HARRIETT WIEDER, CHAIRMAN, BOARD OF SUPERVISORS, ORANGE COUNTY, CALIF.

Mr. Chairman and Members of the Subcommittee, I am Harriett Wieder, chairman of the Board of Supervisors of Orange County, California. It is my privilege to appear before your Subcommittee to request appropriations for several on-going projects which are urgently needed by the citizens of Orange County, the sixth most populous county in the United States.

During the 20 years since Congress first authorized the Santa Ana River Basin and Orange County, California project, the Orange County Flood Control District has expended approximately $145 million of local funds for flood control improvements, with no Federal funding other than Federal disaster assistance for restoration of facilities damaged during flooding episodes.

The Orange County Board of Supervisors is not seeking your funding of every worthwhile project in our county. We recognize the burdens you bear in trying to parcel out scarce Federal dollars on a multitude of deserving and laudable projects while trying to maintain sensible fiscal policy and not add to our tremendous Federal deficit. The only projects for which we request your support are those which otherwise could not proceed.

1. The Santa Ana River Main Stem Project - It has now been 14 years since the Corps of Engineers identified a flood storage deficiency in Prado Dam and Reservoir. A survey report was completed in 1975 and the Congress authorized proceeding with a Phase I, General Design Memorandum (completed in 1980) indicating the Santa Ana River to be the greatest flood threat in the United States. The Corps has a tentative schedule for completion of a Phase II, General Design Memorandum in 1988; however, in order to meet that schedule, augmentation of the President's budget is needed. An appropriation of $3.5 million is requested. This increase of $1 million is needed to cover

the costs of an additional study the Corps is currently undertaking on possible alternatives to the proposed Mentone Dam in San Bernardino County. Without this funding increase, planning for the entire Santa Ana project will slip one year behind.

2. Santa Ana River Basin and Orange County, California Project, Interim Report III - West Orange County, and in particular several areas in the City of Huntington Beach, were devastated by overflow of the locally-financed flood control channel system constructed by the Orange County Flood Control District under a 1956 bond issue. This bond program anticipated future improvements of the earthen leveed channels by installation of a reinforced concrete channel lining when additional funds became available. In 1983 alone, flood damages exceeded $13.5 million. To expedite the investigation of improvements needed, the Orange County Flood Control District has commissioned a $130,000 private engineering contract to be integrated with studies by the Corps of Engineers if funds are appropriated in FY 1985. Augmentation of the President's budget is needed in order to promptly mitigate the present flood hazard to thousands of west Orange County residents. An appropriation of $550,000 is requested.

3. Coast of California, Special Study - Orange County's coastline ("42 miles of happy smiles") was devasted by the storm surf of early 1983, along with numerous other California coastal areas. Orange County strongly supports the comprehensive study of the California coast by the Corps of Engineers. An appropriation of $1.5 million is requested.

4. Newport Bay Harbor - The dredging of Upper Newport Bay from Pacific Coast Highway to a large State-owned fish and game reserve is needed in order to improve navigation to adjacent residential marinas and public boat launch facilities, and to [illegible] siltation and shoaling which is beginning to migrate and encroach upon one of the west coast's most well-known small boat harbors. This harbor has been almost maintenance free

since its original Federal authorization in 1934. An appropriation of $150,000 is requested.

5. Surfside to Newport Beach Sand Replenishment Project - Completion of Phase VIII of this project of great importance to Orange County is acknowledged with grateful appreciation. No appropriation is requested.

All of the foregoing projects have as their primary goal the prevention of economic loss to the local community and to the nation as well. None of the proposed construction could be expected to go forward without favorable benefit cost ratios, nor without the support of local citizens, the State of California, and all the various environmental regulation agencies. I strongly urge your Subcommittee to approve these appropriations with recognition that in these times of fiscal constraint, the cost of proceeding with the project is far less than the cost of not proceeding. Thank you for the opportunity of presenting these very important needs on behalf of the citizens of Orange County, California.

STATEMENT OF CARL NELSON, DIRECTOR OF PUBLIC WORKS, ORANGE COUNTY, CALIF.

Mr. Chairman and Committee members, I am Carl Nelson, Director of Public Works for Orange County, California. It is my privilege to appear before your committee to request appropriations for several projects which are urgently needed by California's second most populous county.

Since 1964, when the Congress first authorized the Santa Ana River Basin and Orange County, California project, the Orange County Flood Control District has expended approximately $145 million for flood control improvements with no federal funding other than federal disaster assistance for restoration of facilities damaged during the flooding episodes of 1969, 1978, 1980 and 1983. Federal funds granted during those emergencies from the Federal Emergency Management Agency total approximately $7.6 million. Further, it is our understanding that the people of Orange County, California are now paying approximately $4.5 million annually for flood insurance as required by the National Flood Insurance Program.

The only projects for which the Orange County Board of Supervisors is requesting support of your committees are those which otherwise could not proceed without federal assistance. These projects are described as follows:

1. The Santa Ana River Main Stem Project - It has now been 14 years since the U. S. Army Corps of Engineers identified a flood storage deficiency in Prado Dam and Reservoir (constructed by the Corps in 1941). A survey report was completed in 1975 and the Congress authorized proceeding with a Phase I, General Design Memorandum (completed in 1980) indicating the Santa Ana River to be the greatest flood threat in the western United States. The Corps has a tentative schedule for completion of a Phase II, General Design Memorandum in 1988; however, in order to meet that schedule, augmentation of the President's budget is needed. An appropriation of $3.5 million is requested.

2. Santa Ana River Basin and Orange County, California project, Interim Report III (under the 1964 authorization mentioned above) - West Orange County, and in particular several areas in the City of Huntington Beach, were devastated by overflow of the locally financed, flood channel system constructed by the Orange County Flood Control District under a 1956 bond issue. This bond program anticipated future improvements of the earthen leveed channels by installation of a reinforced concrete channel lining when additional funds became available. In 1983 alone flood damages exceeded $13.5 million. To expedite the investigation of improvements needed, the Orange County Flood Control District has commissioned a $130,000 private engineering contract to be integrated with studies by the Corps of Engineers if funds are appropriated in FY 1984-85. Augmentation of the President's budget is needed in order to promptly mitigate the present flood hazard to thousands of west Orange County residents. An appropriation of $550,000 is requested.

3. Sunset Harbor (Bolsa Chica) - Ocean access to Sunset Harbor (and a residential marina known as Huntington Harbour) is available only via a temporary arrangement with the U. S. Navy through the Anaheim Bay entrance to the Seal Beach Naval Weapons Station. A new ocean entry is needed to improve navigation, eliminate conflict with naval operations, improve tidal circulation to a State Department of Fish and Game environmental reserve, and permit the private owner of adjacent uplands to restore a degraded wetlands area while developing additional residential marina capacity. Corps of Engineers cooperation in the development of a local coastal plan is very important to this project. A memorandum of understanding between local interests and the Corps has been drafted which provides for Corps of Engineers to participate in the planning work with costs reimbursable from the local interests. An appropriation of $175,000 is requested.

4. Newport Bay Harbor - The dredging of Upper Newport Bay from Pacific Coast Highway to a large State-owned fish and game reserve is needed in order to improve navigation to adjacent residential marinas and public boat launch facilities, and to remove siltation and shoaling which is beginning to migrate and encroach upon one of the west coast's most well known small boat harbors. This harbor has remained almost maintenance free since its original federal authorization in 1934. An appropriation of $150,000 is requested.

5. Surfside to Newport Beach Sand Replenishment Project - Completion of Phase VIII of this project of great importance to Orange County is acknowledged in FY 1983-84 with grateful appreciation. No appropriation is requested.

6. Coast of California, Special Study - Orange County's coastline ("40 miles of happy smiles") was devastated by the storm surf of early 1983, along with numerous other California coastal areas. Orange County strongly supports the comprehensive study of the California coast by the U. S. Army Corps of Engineers. An appropriation of $1,500,000 is requested.

All of the foregoing projects have as their primary goal the prevention of economic loss to the local community and to the nation as well. None of the proposed construction could be expected to go forward without favorable benefit cost ratios, nor without the support of local citizens, the State of California, and all the various environmental regulation agencies. I strongly urge your committee to approve these appropriations with recognition that in these times of fiscal constraint, the cost of proceeding with the project is far less than the cost of not proceeding. Thank you for the opportunity of presenting these very important needs on behalf of the citizens of Orange County, California.

STATEMENT OF GEORGE OSBORNE, EXECUTIVE DIRECTOR, SANTA ANA RIVER FLOOD PROTECTION AGENCY

Summary of request: The President's budget for fiscal 1985 proposes $2.5 million for continuing planning and engineering on the Santa Ana River main stem project. The Corps of Engineers reports that this amount is insufficient to keep the project on schedule. An increase in the appropriation to $3.5 million is requested.

Twenty-two years have passed since the Orange County Board of Supervisors requested the House of Representatives Pubiic Works Committee to authorize a resurvey of the Federal flood control program for Orange County, Calif.

Thirteen years have slipped away since the Corps of Engineers resurvey work revealed that its Prado Dam and Reservoir project on the Santa Ana River is inadequate to protect Orange County from devastation from floods exceeding a 70-year frequency.

Nine years have gone since the Corps of Engineers published its resurvey report recommending, from a number of alternatives, an all-river plan for protecting Orange, Riverside, and San Bernardino Counties from Santa Ana River floods up to a 200-year frequency.

No water project omnibus authorization bill has been enacted into law for more than 8 years.

Four years ago the Corps of Engineers completed its phase I general design memorandum for the Santa Ana River main stem project (all-river plan).

Currently pending water project authorization bills S. 1739 and H.R. 3678 each include the Santa Ana River main stem project and hopes are higher than for many years that in this year a project will be authorized to correct what is described by the Corps of Engineers as the worst flood threat west of the Mississippi.

In the meanwhile, the Corps of Engineers is engaged in continuing planning and engineering under the phase I general design memorandum authorization and Orange, Riverside, and San Bernardino County boards of supervisors have agreed that the first units of construction of the all-river plan should, upon completion, give Orange County at least 100-year flood protection.

The administration budget for fiscal 1985 would provide $2.5 million for continuing planning and engineering and for the Mentone Dam alternatives study ordered by the Congress in a 1983 supplemental appropriations bill but without providing additional funding.

The Corps of Engineers will require $3.5 million in fiscal year 1985 to accomplish the continuing planning and engineering and the Mentone alternates study within the expected schedules. With $2.5 million appropriated the Corps of Engineers expects the entire project to slip another year with increased construction costs and increased exposure to flood damage and loss of life.

This agency represents a total of 22 public entities including 18 cities on the Santa Ana River overflow area with a population exceeding 1 million. These cities face a potential property loss of in excess of $10 billion from a 200-year flood due to the inadequacies of Prado Dam.

The board of commissioners of the agency urgently request that the fiscal year 1985 appropriation for the Santa Ana River main stem project be increased to $3.5 million, the commissioners consisting of elected officials of cities, the County of Orange, the Orange County Water District, and the county sanitation districts.

STATEMENT OF RON COALE, COUNCILPERSON, STOCKTON, CALIF.

Mr. Dodson. Next, may I present Mayor Randy Ronk of the city of Stockton.

Mr. Coale. Thank you.

I am substituting for Randy Ronk, mayor of Stockton.

Mr. Dodson. I am sorry.

Mr. Coale. My name is Ron Coale and I am a council member of the city of Stockton, Calif. I have been authorized by the city council to make this statement before your honorable body today.

We have previously submitted a statement and I will just highlight. The city of Stockton supports the Corps of Engineers, the Bureau of Reclamation surveys, flood control and reclamation projects; namely, the New Melones project, the deepening of the Stockton ship channel to 35 feet, and realigning part of the channel, aquatic plant control on the San Joaquin River Delta, the San Joaquin River basin survey, Auburn-Folsom South, delta support studies, and New Melones studies.

Thank you, Mr. Chairman, for your consideration.

Senator MATTINGLY. Thank you.

[The statement follows:]

STATEMENT OF RANDALL RONK, MAYOR, STOCKTON, CALIF.

I am Mayor Randall "Randy" Ronk of the City of Stockton, California authorized by the Stockton City Council to make this statement before your honorable body today.

The City of Stockton supports the Corps of Engineers and Bureau of Reclamation surveys, flood control and reclamation projects in the following amounts:

1.	New Melones Project	$ 7,500,000
2.	Deepening of the Stockton Ship Channel to 35 feet and realigning part of the Channel	$18,400,000
3.	Aquatic Plant Control--San Joaquin River Delta	$ 100,000
4.	San Joaquin River Basin Survey	$ 445,000
5.	Auburn-Folsom South	$ 5,250,000
6.	Delta Support Studies	$ 1,189,000
7.	New Melones Studies	$ 550,000

FLOOD CONTROL -- CORPS OF ENGINEERS

NEW MELONES PROJECT-------------------------------------$ 7,500,000

The President's budget provides $4,500,000 to advance construction of minimal recreation facilities in the reservoir area. We believe the full, authorized recreation facilities in the reservoir area and the access, recreational and spawning-bed improvements in the lower river area, should be completed promptly so the Project can serve all its authorized purposes and can maximize its benefits. The California Water Commission's recommendation of $7,500,000 is supported.

SAN FRANCISCO BAY TO STOCKTON SHIP CHANNEL DEEPENING--$18,400,000

The President's budget contains and the California Water Commission recommends $18,400,000 for the San Francisco Bay to

Stockton Ship Channel Deepening. The City supports the full appropriation in order for the project to be completed as soon as possible.

AQUATIC PLANT CONTROL--SAN JOAQUIN RIVER DELTA-------$ 100,000

Substantial success has been achieved in controlling the massive water hyacinth blockage of Delta channels in and near the San Joaquin River arm of the Delta. These plants, which threatened to block all channel navigation, should be eradicated.

SURVEY -- CORPS OF ENGINEERS

SAN JOAQUIN RIVER BASIN SURVEY----------------------$ 445,000

The City of Stockton supports the recommendation of the California Water Commission that $445,000 be appropriated for the San Joaquin River Comprehensive Basin Survey as recommended in the budget. The City is particularly interested in the portions of the survey which deal with the river channel upstream of the Delta.

BUREAU OF RECLAMATION

AUBURN-FOLSOM SOUTH---------------------------------$ 5,250,000

The President's budget contains $3,500,000 for work in the Auburn Dam area in fiscal year 1984-85. The Bureau of Reclamation is conducting studies preliminary to discussions with non-Federal agencies about financial participation in the Auburn Project. Preliminary reports by the Bureau indicate the Project is economically justified when its physical facilities are modified in accordance with revised designs. Also, the Bureau will need to carry on discussions with Federal agencies involved. The water supplies which can be made available by Auburn are essential to resolving the minimum flow problems on the Lower American River and to providing water for the Folsom South Canal service area.

An important part of the Auburn construction is the Folsom South Canal which now ends about 10 miles north of the San Joaquin County line. Currently, all the public water agencies, including the City, which will be served with water from the Canal, are having a comprehensive groundwater management study done of the area. This $400,000 study, which is locally funded, will enable several water districts in the area to plan conjunctive use of groundwater and surface water to this agricultural area which is primarily pasture, vineyard, row and orchard crops.

The Bureau should be making studies parallel to those on Auburn Dam looking toward eventual extension of the Canal into the County to deliver supplemental water. Upon completion of the Environmental Impact Statement, service area studies will be required in support of contracts for the supplemental water. Therefore, the City supports the Water Commission's recommendation of $5,250,000 for this project.

DELTA SUPPORT STUDIES--------------------------------$ 1,189,000

The City Council supports the President's budget and the Water Commission's recommendation for this level of studies by the Bureau of Reclamation for Delta studies. A wide variety of analyses and studies are required in the Sacramento-San Joaquin Delta which is the central link in California's water systems. The President's budget amount of $789,000 is derived from $408,000 in operation and maintenance funds and $381,000 in construction funds--$400,000 of the $600,000 budgeted for environmental activities will directly involve the important Delta area. It appears the $1,189,000 appropriation recommended by the California Water Commission and the City Council is consistent with the President's budget.

BUREAU OF RECLAMATION -- INVESTIGATIONS

NEW MELONES STUDIES-------------------------------------	$ 550,000

The Bureau has executed contracts with several local agencies for the use of New Melones water supplies. These contracts involve over 90 percent of the total long-term yield of the Project and over 70 percent of the immediate yield. There is a need for the Bureau to continue service area studies with additional contracting parties to use the remaining long-term and interim water supplies. While the President's budget contains $150,000 for these purposes the City supports the California Water Commission's recommendation of $550,000 in order to make more concerted efforts to achieve maximum use of New Melones water.

Resolution No. 40460

WHEREAS, on April 5, 1984, appropriate committees of the Congress of the United States will conduct hearings to consider Federal Appropriations for flood control, reclamation, and navigational projects and surveys for fiscal year 1984-85; and

WHEREAS, several projects and surveys to be considered at said Congressional hearings will be of benefit to the City of Stockton and its environs; and

WHEREAS, the expeditious construction of said projects and completion of said surveys is required to protect the health, welfare and safety of the residents of this area; now therefore

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF STOCKTON, AS FOLLOWS:

That the City of Stockton does hereby support the appropriation by the Congress of the United States of funds for fiscal year 1984-85 for the planning, continuation and completion of flood control, reclamation, and navigational projects and surveys; namely NEW MELONES PROJECT, SAN FRANCISCO BAY TO STOCKTON SHIP CHANNEL DEEPENING, AQUATIC PLANT CONTROL--SAN JOAQUIN RIVER DELTA, SAN JOAQUIN RIVER BASIN SURVEY, AUBURN-FOLSOM SOUTH, DELTA SUPPORT STUDIES AND NEW MELONES STUDIES which affect the City of Stockton and its environs; be it

FURTHER RESOLVED, that the representatives of the City of Stockton, Mayor Randall "Randy" Ronk and Councilman Ron Coale are authorized to appear before appropriate committees of the Congress of the United States on April 5, 1984 for the purpose of making presentations consistent with this resolution; be it

FURTHER RESOLVED, that the City Manager is hereby authorized and directed to send copies of this resolution to the Honorable Alan Cranston, the Honorable Pat Wilson, the Honorable Norman Shumway and the Honorable Richard Lehman.

PASSED, APPROVED and ADOPTED this 19th day of March, 1984.

SACRAMENTO RIVER, CHICO LANDING TO RED BLUFF, CALIF.

STATEMENT OF DANIEL M. WELDON, EXECUTIVE DIRECTOR, SACRAMENTO VALLEY LANDOWNERS ASSOCIATION

ACCOMPANIED BY:
DON ANDERSON
PETER BEDROSSIAN

Mr. DODSON. Next to my right is Mr. Daniel Weldon who is executive director of the Sacramento Valley Landowners Association.

Mr. WELDON. Mr. Chairman, today we are asking this committee's support for an augmentation of the current budget for the Chico Landing to Red Bluff project in the current amount programed by the President to the level of $4 million from the level of $2 million. We have completed the plan and are ready to go on with the project. We believe it would be a shame if we do not move forward with that project.

On the Sacramento River bank protection project, we are also asking for an augmentaion from the $2.5 million to the $5 million level. Unless we get the augmention, we will find that the upper Butte basin overflow plan will not be worked on until 1986 and we think that would be a lesson we cannot afford to get into.

I want to attach my statement and I have done so with a copy of a resolution from the county board of supervisors declaring this area to be an emergency and that will, hopefully, go into my statement.

We also support the Cottonwood Creek project for $5 million as well.

[The statement follows:]

STATEMENT OF DANIEL M. WELDON, EXECUTIVE DIRECTOR, SACRAMENTO VALLEY LANDOWNERS ASSOCIATION

The Sacramento Valley Landowners Association is a non-profit organization of property owners along the Sacramento River and its tributaries. The primary issue of continuing concern to our membership is protection from river bank erosion and seepage which each year causes millions of dollars of loss to both public and private property in our area. With the help of this Congressional Committee, over the past two years we have seen a revitalization of the two bank protection projects authorized for our river. We are appearing before you today to ask your support for an increase in funding for these two vital projects. We predicate our testimony on our sincere belief that the plans to begin stabilizing this long neglected Sacramento River must be fully implemented during the summer of 1985. We also want to acknowledge the guidance and support we have received from our state's Senators, Pete Wilson and Alan Cranston.

CHICO LANDING TO RED BLUFF PROJECT:
The State of California, through the State Reclamation Board, has adopted a systematic plan to stabilize the Sacramento River between Chico Landing and Red Bluff. Starting at the Red Bluff Diversion Dam, the plan is to provide bank protection at the most significant erosion sites in sequence over a period of years. As originally conceived by the State Reclamation Board, complete stabilization should take between five and six years. This comprehensive approach is to be started this summer in the first of five river reaches. The plan agreed to by the State and Corps of Engineers calls for this first reach (25,600 lineal feet) to be completed in no more than three years. But during the summer of 1984 only the first four sites will be stabilized because $2 million was appropriated for the project. Should that same amount be used in FY 85, then it will take four or five years to accomplish a job that should be done in three years. We ask this committee to support our request for $4 million in the FY 85 budget.

We landowners continue to agree to donate the lands, easements and rights of way at no cost to the State of California. The state is providing mitigation to prevent significant effects on the environment. We are pleased to report that all local, regional and state authorities join with SVLA in our request for an increase in FY 85 to the $4 million level.

SACRAMENTO RIVER BANK PROTECTION PROJECT:
No less important to our organization is the Sac Bank Project. This series of levees and bypasses sustained great damage from flooding in 1982 and 1983. In fact, this project suffered a full six years of neglect because of state policy. Units 37, 38 and 39 are now in the process of being implemented by the Sacramento District of the Corps of Engineers. SVLA requests that Congress appropriate $5 million for this project in FY 85. Until last week we were in agreement with the State Reclamation Board that we request an addition to the President's Budget ($2.5 million now) to the $4 million level. We feel justified in seeking this $5 million amount because of the high priority two local counties (Glenn and Butte) have placed on the swift completion of the most critical bank protection within the Butte Basin Overflow Plan (Unit 39).

I have with me today three landowners on whose property this bank protection is scheduled to be performed: Don Anderson (Anderson Orchards), Bill Koehnen (Koehnen & Sons) and Peter Bedrossian (Parrott Ranch Company). Mr. Anderson and Mr. Koehnen have hand carried a Declaration of Emergency passed on March 27 by the Glenn County Board of Supervisors, which states Glenn County's evaluation that the Road 29-Glenn County area cannot withstand a significant winter flood. I have attached this resolution to my testimony and would like to make it a part of the Congressional record of these proceedings.

SVLA is convinced that Unit 39 of this Sac Bank Project must be started during the summer of 1985 and this will require federal funding for the entire project totalling $5 million. The State Reclamation Board is scheduled to address this budget item during their own testimony and it is our understanding they will also be asking your support for $5 million in the Sac Bank Project.

SVLA would also like to indicate our support for the Cottonwood Creek Project ($5 million), Sacramento River - Major and Minor Tributaries ($.2 million), and the Sacramento River Flood Control Project ($.25 million).

We believe some $50 million in crop/property losses due to 1983 Sacramento River seepage could have been avoided by the Bureau of Reclamation. We are working with Bureau of Reclamation now to attempt to resolve the problems of seepage by exploring ways of revising the water release schedule from Shasta Dam and the Trinity River system. We are not asking for special funding on this seepage problem from Congress at this point, but we may be doing so in the future.

BOARD OF SUPERVISORS, GLENN COUNTY, CALIFORNIA

RESOLUTION NO. 84- 40

* * *

RESOLUTION DECLARING ROAD 29 GLENN COUNTY AREA OF THE SACRAMENTO RIVER BANK PROTECTION PROJECT A LOCAL EMERGENCY.

WHEREAS, on this 27th day of March, 1984, the Glenn County Board of Supervisors voted unanimously to request rip-rap bank protection, which is urgently required, to stabilize the Sacramento River in the "Road 29, Glenn County" area of the Sacramento River Bank Protection Project; and

WHEREAS, the Board is convinced that this erosive area of the River will not withstand significant high water if it remains unprotected during the summer of 1984.

NOW, THEREFORE, the Board of Supervisors FINDS this situation to be a local emergency for the following reasons:

1. The river is threatening to break out of its present channel at this location which poses a significant threat to down-stream levees, to the Ord Bend Bridge, and to public and private properties;

2. An ox-bow cut-off could take place at this location which would place in jeopardy the implementation of the Butte Basin Overflow Plan;

3. The bank on the outside of the bend (beginning at River Mile 188.8R) is eroding at the rate of approximately 150 feet per year; 500 feet were eroded during 1983 alone. At this average rate, several structures (a residence, barn, and farm headquarters)

face destruction;

4. County Road 29 has washed out several times in recent years and has been rebuilt by the County of Glenn through local and federal funding. State engineers believe the Road will wash out again unless the entire reach is stabilized;

5. Landowners of the area have exhausted their own funding capabilities in their previous attempts to rock portions of the area. It is necessary that the entire reach of bank (some 4,000 lineal feet) be rip-rapped at the same time in order to assure continuing stability;

6. Construction of levees and bank protection works on the opposite side of the river near Murphy Slough have aggravated the problem at Road 29; and

7. In years of continual high water (1982 and 1983) five homes were left stranded for up to six months.

NOW, THEREFORE, the Glenn County Road of Supervisors RESOLVES and DECLARES that the Road 29 Glenn County area of the Sacramento River Bank Protection Project is a local emergency and requests that this area be stabilized during the summer of 1984 through a coordinated effort of local, County, State and Federal entities.

This Resolution was passed by the Board of Supervisors of the County of Glenn at a regular meeting thereof on the 27th day of March, 1984, by the following vote:

AYES: Supervisors Blacet, Pride, Hansen, Edwards, and Williams, (Chairman)
NOES: None;

ABSENT: None;

Joe Williams
CHAIRMAN, Board of Supervisors, Glenn
County, California

ATTEST: Milton E. Walker
MILTON E. WALKER, COUNTY CLERK-RECORDER and
ex officio Clerk, Board of Supervisors,
Glenn County, California

SANTA ANA FLOOD CONTROL PROJECT

STATEMENT OF ROBERT INGRAM, DIRECTOR, SAN BERNARDINO COUNTY DEPARTMENT OF TRANSPORTATION AND FLOOD CONTROL

Mr. DODSON. Next, I have the pleasure to introduce Mr. Bobby Ingram, director of the San Bernardino County Department of Transportation and Flood Control.

Mr. INGRAM. Mr. Chairman, San Bernardino County has submitted prepared testimony for the record. I wish to only add the following comment with respect to the Santa Ana River project. We have been working very closely and with an excellent record of cooperation with Orange and Riverside Counties and the Corps of Engineers to develop and support a regional flood control project in this area. What we must do is keep this project on schedule and avoid costly delays.

Sufficient funds need to be appropriated to complete upstream storage studies in a timely fashion and also proceed on design of other elements without delay. Design work and studies must also proceed on key upstream major tributaries, not only to provide a protection but to assure a complete and integrated project as well. To accomplish this we are supporting $3.5 million appropriations for the Santa Ana River main stem and $400,000 for key tributary studies identified as the Santa Ana River and Orange County report 2.

A few minutes ago my colleague from Riverside County had to leave and asked me to indicate their support for the Santa Ana River project as well as the upstream studies.

Thank you.

Mr. DODSON. Thank you.

[The statement follows:]

STATEMENT OF CAL MCELWAIN, CHAIRMAN, BOARD OF SUPERVISORS, SAN BERNARDINO COUNTY, CALIF.

The Board of Supervisors of the San Bernardino County Flood Control District, State of California wishes to express appreciation to your Committee for your continued support of our Federal Flood Control Program, over the past years. This program is of vital importance to life and property in San Bernardino County, California. The flood protection projects, reflected by the following budgetary recommendations, are our most critical ones.

1.	Cucamonga Creek	$1,453,000
2.	Santa Ana River and Orange County Review Report Interim II	400,000
3.	Santa Ana River Main Stem - All River Plan	3,500,000
4.	Mojave River Dam	360,000
5.	Lytle and Warm Creeks Project	200,000

These projects are recommended as urgent by the State of California. The work reflected in these proposals is considered by this Board as essential and urgent both to local and national interests, as demonstrated by recent floods. A brief description of these projects is contained herein.

Your consideration of these programs and their funding will be greatly appreciated.

SANTA ANA RIVER TRIBUTARIES
INTERIM REPORT II
(Delineated in Yellow on Exhibit Map)

Flood control improvements of the utmost importance to San Bernardino County are included in the survey for flood control entitled "Santa Ana River Basin and Orange County Review Report."

The second of five interims of this report included major upstream tributaries of the Santa Ana River. These projects are Zanja Creek, San Timoteo Creek, Wilson-Wildwood Creeks, Rialto Channel, Del Rosa Channel and San Jacinto River. Major flooding on these Santa Ana River tributaries in past and recent years have closed roads, hampered emergency services, disrupted vital utilities, damaged property and endangered life.

The requested funding of $400,000 recommended by the State of California Water Commission will begin the survey studies of Interim Report II. It is necessary to continue this investigation of these vital tributaries that flow through five major cities in San Bernardino County with population that exceeds 270,000 people.

SANTA ANA RIVER MAIN STEM
Riverside, Orange, San Bernardino Counties
(Alternate Storage Sites under Study Delineated in Pink on Exhibit Map)

Corps of Engineers studies indicate that this project has one of the highest priorities in the United States. Future floods on the Santa Ana River could cause an estimated $9.2 billion in damage and would jeopardize the lives of over 1.8 million people. By Resolution, the three counties of Riverside, Orange and San Bernardino have expressed united and strong support for this All-River Plan project. It is imperative that the studies being conducted to evaluate and determine alternate storage sites in the upstream area be completed on schedule. This, combined with the ongoing design features from Prado Dam downstream, will provide the earliest construction of this project. $3,500,000 is needed to keep the project on schedule and it is estimated that the funding reductions of $1,000,000 will delay the project by one year.

CUCAMONGA CREEK PROJECT
(Delineated in Blue on Exhibit Map)

The Cucamonga Creek project now nearing completion affords protection for the incorporated cities of Upland, Rancho Cucamonga, Ontario, Montclair and Chino. The current population of this affected area is more than 1.5 million, with an assessed property valuation approaching $5 billion. Completion of the final element of erosion control and slope protection is necessary to protect the investment which has been made to date and will reduce future operational and maintenance costs. The current funding of $1,453,000 for Fiscal Year 1984-85 will complete this $118,000,000 project started in 1974.

On behalf of the County of San Bernardino, the Board of Supervisors expresses its deepest appreciation to the Congress, the United States Army Corps of Engineers, and the State of California for support and accomplishment of this urgently needed project.

LYTLE AND WARM CREEK PROJECT
(Delineated in Green on Exhibit Map)

The multi-million dollar Lytle and Warm Creeks Project designed for standard project floods was completed in 1979. The 1980 storm generated over a million cubic yards of unexpected sediment deposit along the main stem Santa Ana River near Warm Creek and Lytle Creek confluence. Due to the massive debris build up, the channel now provides significantly less than 100-year protection and endangers the main line of both the Atchison Topeka and Santa Fe and the Southern Pacific Railroads, Interstate Highways 10 and 215 in addition to major utility lines servicing our County and the greater Los Angeles metropolitan area. The Corps of Engineers has design modification concepts for correcting the sedimentation problem which will again provide acceptable levels of flood protection. Total cost of this proposal is $2.1 million, which includes $200,000 for design costs as requested for FY 84/85. Correction of this deficiency is vital to provide the intended protection to life and property.

MOJAVE RIVER DAM GATES
(Delineated in Orange on Exhibit Map)

The Mojave River Dam and appurtenances were completed in May 1971. This $18,431,000 project has a large outlet works located in the left abutment of the dam and is ungated. Storm waters released from the outlet are causing substantial damages and high maintenance costs to the existing downstream levee system protecting the 19,000 acres of agricultural lands along the Mojave River. These storm waters are also devastating to the cities of Victorville and Barstow. Both local and arterial highways are closed annually. Additionally, water conservation needs can be accomplished by gating this outlet. The State of California and Mojave Water Agency support the project as groundwater basins underlying the Mojave River are being depleted approximately 50,000 acre feet annually.

On June 23, 1980, the San Bernardino County Flood Control District Board of Supervisors and other local agencies adopted a resolution requesting Congressional approval for a study by the U.S. Army Corps of Engineers, Los Angeles District, to modify the ungated outlet of the Mojave River Dam. The current funding requirement of $360,000 is needed to complete the technical studies, plan recommendations and finalize the report, so that construction can quickly be initiated to maximize benefits of this existing facility.

CUCAMONGA CREEK PROJECT

APPENDIX 1

PROJECT CONSTRUCTION FUNDS

PROJECT AUTHORIZED	Public Law 90-483, 90th Congress, 2nd Session, Approved August 13, 1968
TOTAL CONSTRUCTION FUNDS REQUIRED: (1)	$117,856,000 (1)
PRIOR FEDERAL CONSTRUCTION FUNDS	$ 92,447,000
STATE OF CALIFORNIA WATER COMMISSION RECOMMENDATIONS Fiscal Year 1984-85:	$ 1,453,000
PRESIDENT'S BUDGET	$ 1,453,000
REQUIRED ACTION:	Approval by Appropriations Committees and Congress of $1,453,000 in Fiscal Year 1984-85 budget to complete the continuing Contract on Cucamonga and Demens Creeks Channel Erosion Control Part 2 and this will complete the project.

(1) Includes $23,956,000 non-federal construction costs

LYTLE AND WARM CREEKS PROJECT

APPENDIX 2

SUPPLEMENTAL MEMORANDUM NO. 1

ORIGINAL PROJECT AUTHORIZED	Public Law 89-298, 89th Congress, 1st Session, Approved October 27, 1965
TOTAL FEDERAL COST ESTIMATED	$37,200,000
PRIOR CONSTRUCTION FUNDS	$35,100,000
STATE OF CALIFORNIA WATER COMMISSION RECOMMENDATIONS Fiscal Year 1984-85:	$ 200,000
PRESIDENT'S BUDGET Fiscal Year 1984-85:	$ 200,000
REQUIRED ACTION:	Approval by Appropriations Committees and Congress of $200,000 to initiate and complete plans and specifications to correct the sedimentation problems.

MOJAVE RIVER DAM GATES

APPENDIX 3

SECTION 216 STUDY

REVIEW OF COMPLETED PROJECT

ORIGINAL PROJECT AUTHORIZED	Public Law 86-645, 86th Congress, House of Representatives 7634, July 14, 1960.
TOTAL CONSTRUCTION COST*	$ 18,341,000
REVIEW OF COMPLETED PROJECT	$ 590,000
PRIOR PLANNING AND ENGINEERING	$ 230,000
STATE OF CALIFORNIA WATER COMMISSION RECOMMENDATIONS Fiscal Year 1984-85:	$ 360,000
PRESIDENT'S BUDGET Fiscal Year 1984-85:	$ 360,000
REQUIRED ACTION:	Approval of $360,000 by Appropriations Committees and Congress for completion of all technical studies. Plan recommendation and preparation of Report.

*Includes $250,000 of non-federal construction costs

SANTA ANA RIVER BASIN AND ORANGE COUNTY REVIEW REPORT

APPENDIX 4

SAN BERNARDINO, RIVERSIDE AND ORANGE COUNTIES, CALIFORNIA

INTERIM NO. II

SURVEY AUTHORIZED	Review Report Authorized by Resolution of the House of Representatives Committee on Public Works, adopted May 8, 1964.
TOTAL FUNDS REQUIRED:	$9,340,000 (1)
PRIOR SURVEY FUNDS APPROVED	$6,594,000 (2)
STATE OF CALIFORNIA WATER COMMISSION RECOMMENDATIONS Fiscal Year 1984-85:	$ 400,000
PRESIDENT'S BUDGET Fiscal Year 1984-85:	$ -0-
REQUIRED ACTION:	Approval of $400,000 by Appropriations Committees and Congress for continuing survey in Fiscal Year 1984-85 of INTERIM NO. II

(1) San Bernardino County Survey portions include Mentone Dam, San Timoteo Creek and tributaries (San Timoteo Creek-Loma Linda, Redlands Zanja, Wilson and Wildwood Creeks), Warm Creek and tributaries, San Sevaine Creek and tributaries, and Rialto Channel.

(2) Includes $425,000 previously alloted to Bureau of Reclamation (Department of Water and Power Resources).

SANTA ANA RIVER MAIN STEM FLOOD CONTROL PROJECT

ALL RIVER PLAN

APPENDIX 5

PROJECT AUTHORIZED	Public Law 94-587, Section 109, 94th Congress, 2nd Session, Approved on October 22, 1976.
TOTAL PLANNING AND ENGINEERING FUNDS REQUIRED:	$20,300,000
PRIOR PLANNING AND ENGINEERING FUNDS	$ 5,725,000
STATE OF CALIFORNIA WATER COMMISSION RECOMMENDATIONS Fiscal Year 1984-85:	$ 3,500,000
PRESIDENT'S BUDGET Fiscal Year 1984-85:	$ 2,500,000
REQUIRED ACTION:	Approval by Appropriations Committees and Congress of $3,500,000 to continue environmental, economic, hydrology and hydraulics, geotechnical and real estate studies for Prado Dam and downstream; and to conduct technical, cost saving, environmental and social evaluation studies for upstream storage sites as an alternative to Mentone Dam.

CENTRAL VALLEY WATER RESOURCE PROJECTS

STATEMENT OF MICHAEL A. CATINO, MANAGER, CALIFORNIA CENTRAL VALLEY FLOOD CONTROL ASSOCIATION

Mr. DODSON. Next it is a pleasure to introduce Mr. Mike Catino, a long-time friend of all of us who is now the manager of the California Central Valley Flood Control Association.

Mr. CATINO. Thank you, Mr. Dodson.

Mr. Chairman, I am Michael A. Catino. I am manager of the California Flood Control Association, the oldest such flood control association in the State of California.

To bring to your attention, there are some items that we are highly interested in, especially the continuation of the Dry Creek study on investigations by the Corps of Engineers. We seek an augmentation there of a small amount to complete that study, also a barge canal from Yuba City to Sacramento. The study is known as Sacramento Valley navigation program.

We endorse the President's budget on a number of items; however, we seek additional funds on the Sacramento River bank protection program and also the protection program for Chico Landing to Red Bluff.

We are highly interested in the Auburn-Folsom South unit. You have heard the figure of $5,250,000 mentioned. We would like to see those funds appropriated so that the Bureau of Reclamation can commence designs on these facilities. The continuation or the delay of building Auburn Dam remains a threat to the flooding of the city and county of Sacramento.

Separately, I am authorized to speak for Supervisor Pete Peters of Shasta County and Supervisor Judi Johnson of Tehama County in support of the flood control project along the Sacramento River, as well as the Cottonwood Creek dams.

Thank you very much, Mr. Chairman.

[The statements follow:]

STATEMENT OF MICHAEL A. CATINO, MANAGER, CALIFORNIA CENTRAL VALLEYS FLOOD CONTROL ASSOCIATION

SUMMARY

This Statement urges augmentation of the President's fiscal budget, as follows:

Corps of Engineers

General Investigations

Dry Creek - Placer and Sacramento Counties, from $150,000 to $300,000

Sacramento Valley Navigation - Yuba and Sutter Counties, from $0 to $50,000

Cottonwood Creek Dams - Shasta County, from $2,500,000 to $5,000,000

Construction

Lower San Joaquin River and Tributaries, from $0 to $2,000,000

Sacramento River Bank Protection, from $2,500,000 to $4,000,000

Sacramento River, Chico Landing to Red Bluff, from $2,000,000 to $4,000,000

Bureau of Reclamation

Construction

Auburn-Folsom South Unit, from $3,500,000 to $5,250,000

Investigations

Shasta Dam Enlargement - Shasta County, from $0 to $100,000

Mr. Chairman and Members of the Committee: I am Michael Catino, Manager of the California Central Valleys Flood Control Association (CCVFCA) and we appreciate the opportunity to come before you to present our recommendations for fiscal year 1985 appropriations.

The Association, which I am fortunate to represent, was organized in 1926, prior to any major State and Federal water and energy projects, and since that date has been a proponent of all of these developments in California. Seventy Reclamation, Levee Maintenance, and Flood Control Districts comprise its membership, located south from Chico, California to Manteca, California, and containing 860,000 acres along the Sacramento and San Joaquin Rivers and Delta areas.

In some cases the Association supports the President's budget and others we seek augmentations to satisfy the needs and priorities. All of the investigations and construction projects of our interests are authorized. Listed below are our recommendations with comparison to the President's budget and appropriate commentary.

CORPS OF ENGINEERS

General Investigations

Dry Creek - Placer and Sacramento Counties

President's budget - $150,000
CCVFCA recommendation - $300,000

This investigation of $600,000 is only one-half complete. Augmentation from $150,000 to $300,000 would provide an earlier response to the potential drainage questions in northern Sacramento and western Placer Counties. The study area is being urbanized at a rapid rate due to the relocation of hi-tech industries. These developments along with the attendant homes, schools, shopping centers, offices, etc. significantly add to the existing drainage problems of Reclamation District No. 1000.

Sacramento Valley Navigation - Yuba and Sutter Counties

President's budget - $ 0
CCVFCA recommendation - $50,000

A number of years ago the Corps of Engineers completed a study of a proposed Barge Canal from Marysville, California, along the Feather River area to a junction point with the Sacramento River. This initial study needs to be up-dated from an economic and feasibility standpoint. There is the potential to barge aggregate to the San Francisco Bay areas since their present construction supply sources are reducing in capacity.

The local people, Chamber of Commerce, aggregate industry, Boards of Supervisors, etc., support this study and will supply appropriate technical and economic data as a contribution. Should this project prove feasible, the locals will participate in terms of developing the port, handling facilities, warehousing and other appurtenances.

North Bay Area - Suisun Marsh Interim

President's budget - $ 0
CCVFCA recommendation - $100,000

Need to keep this $900,000 study on a continuing basis. Otherwise, the momentum is lost and previous work will need to be reevaluated at a later date, increasing the cost.

Comprehensive - San Joaquin River to Delta

President's budget - $445
CCVFCA recommendation - $445

Support President's budget.

Morrison Creek - Sacramento County

President's budget - $500
CCVFCA recommendation - $500

Support President's budget.

Cache Creek - Lake and Yolo Counties

President's budget - $ 450,000
CCVFCA recommendation - $1,000,000

Due to the potential flooding impact of this creek on the Sacramento Valley flood control system and levee protection, a faster rate of progress is in order. Accordingly, augmentation of funds is necessary.

Cottonwood Creek - Shasta County

President's budget -	$2,500,000
CCVFCA recommendation -	$5,000,000

Recommend the early completion of preconstruction planning and preparation of final designs. This creek, unabated, continues to augment the Sacramento River flows and peril the levee system. A cost-sharing proposal between the Corps of Engineers and the State of California has not developed. However, the work plans should continue simultaneously with these negotiations.

Lower San Joaquin River and Tributaries

President's budget -	$ 0
CCVFCA recommendation -	$2,000,000

This project's work program of dredging the river, rehabilitating the levees and structures was authorized in fiscal year 1984 with an appropriation of $750,000. These funds will be used for surveys and the development of construction specifications. Accordingly, to make this a viable project, construction should start in F.Y. 1985. Funds are required for this purpose.

Sacramento River - Major and Minor Tributaries

President's budget -	$200,000
CCVFCA recommendation -	$200,000

Support President's budget.

Sacramento River Bank Protection

President's budget -	$2,500,000
CCVFCA recommendation -	$4,000,000

The State of California has budgeted $2.2 million for its share of this program. Federal funding in the amount of $4 million is required to match State funding. If these funds are not made available, the rehabilitation work will lag one and one-half to two years.

Sacramento River, Chico Landing to Red Bluff

President's budget -	$2,000,000
CCVFCA recommendation -	$4,000,000

Augmentation of the President's budget is required to make meaningful progress in the northern portion of the Sacramento River. Without a proper construction program, which must be expedited, continuation of bank and levee erosion and adjacent farm land destruction will prevail.

BUREAU OF RECLAMATION

Construction

Auburn - Folsom South Unit

President's budget -	$3,500,000
CCVFCA recommendation -	$5,250,000 (includes $250,000 for Folsom South Canal)

The Bureau, after spending about $25 million on seismic investigations and data, is in the position to commence final designs on Auburn Dam. There is sufficient authorized cost ceiling to cover this work. The authorized total estimated cost of $425 million is indexable to $1.4 billion. While cost-sharing on this project is a worthwhile endeavor, it will only be promulgated by positive signals in the design area. The canal funds will rekindle past studies, commence water contract negotiations, and review of canal alignment locations.

Investigation

Shasta Dam Enlargement

President's budget -	$ 0
CCVFCA recommendation -	$100,000

This investigation has been operating for a number of years with the State of California on a work/fund mutual basis. The State of California has programmed $200,000 for F.Y. 1985. The Bureau has some carry-over funds from F.Y. 1984. The $100,000 is needed to complete a feasibility grade cost estimate along with an appropriate economic study to conclude this report.

STATEMENT OF PETE PETERS, SUPERVISOR, SHASTA COUNTY, CALIF.

Mr. Chairman, members of the committee, I am Pete Peters, Supervisor from District 5 in Shasta County, California, representing the Board of Supervisors of that county.

We are requesting your support for funding for Fiscal Year 1985 for a Federal water project which will significantly affect Shasta County. Specifically, we request your support for the full capability of the Corps of Engineers to complete the Phase II Design Studies for the Cottonwood Creek Dams Project ($5,000,000). In our opinion, it is imperative that this vitally needed flood control and water supply project proceed expeditiously.

The benefit-cost ratio reported to Congress in the 1970 Survey Report was 1.18 to 1. Based on current data, as presented in the final general design memorandum, Phase I, Plan Formulation, the current ratio is 1.3 to 1, even though an interest rate of 7 7/8% is being used today and in spite of inflationary times since 1970.

As evidenced by the statements submitted by the California Water Commission and the State Reclamation Board, the administration of the State of California continues to support this project. Previous State studies have indicated that without additional water development, the State Water Project will fall short of its annual contractual commitments by over 2 million acre feet. The water conserved by the Cottonwood Creek Project would help to alleviate that shortage.

The Phase I Studies which were accomplished in cooperation with the U.S. Fish and Wildlife Service, California Department of Fish and Game, the Corps of Engineers, and others, indicate that environmental problems will be minimized on this project as a result of the large investment proposed environmental mitigation and enhancement measures. It is probably the most viable project in the State of California today. The following is an outline of some of the benefits which would be derived from this project:

- Cottonwood Creek is still the largest uncontrolled tributary to the Sacramento River and Delta system. Water stored by this project would benefit the entire State in the form of reduced flood flows and a corresponding reduction in the flood and erosion problems along the Sacramento River. Expeditious completion of the project will prevent a recurrence of the devastating 1983 floods which were estimated to have caused over $60,000,000 in flood damages.

° The Cottonwood Creek Project would supply approximately 200,000 acre-feet annually in new water supply. This is the amount of water needed to meet the requirements of approximately 1,000,000 people or approximately 70,000 acres of land to provide food for the nation. The State of California has made it abundantly clear that the continued properity and growth of the State is vitally dependent upon development of new water sources and conservation of waters otherwise wasted to the ocean.

° Unemployment in Shasta County has remained over the double-digit mark for many years and peaked at 19.7% in January of 1982. The project would provide much needed construction jobs and new permanent jobs associated with the operation of the reservoirs and the tourism generated by the project. This would give a timely boost to the sagging economy of Northern Calfiornia.

° The Board of Supervisors is under continuing pressure to permit the development of the land in the proposed project area by dividing it into smaller parcels. If the land uses are to remain compatible with a project of this magnitude, it is imperative that studies leading to construction proceed as rapidly as possible so that the necessary rights of way can be purchased with the least disruption to private property owners.

The Cottonwood Creek Project has broad based support which includes those interests oriented to water development and those oriented to protecting the environment. The project enjoys a good benefit-cost ratio, and will provide benefits to the local area as well as to the State and the Nation. The project continues to be supported by the State administration and by the various counties of Northern Calfiornia.

In closing, it is respectfully requested that you support the funding of the full capability of the Corps of Engineers to complete the Phase II Design Studies for the Cottonwood Creek Dams Project in Shasta and Tehama Counties in the amount of $5,000,000.

We appreciate the opportunity to provide these comments and to appear before your committee.

STATEMENT OF JUDI H. JOHNSON, SUPERVISOR, TEHAMA COUNTY, CALIF.

As a supervisorial representative of Tehama County in Northern California, I bring you greetings and wish to express my delight at seeing all of you again.

While we appreciate the help given us in the past, our need continues to be great. The devastation we've suffered in the past two years is still evident in the form of erosion and severe channel change of the Sacramento River. The $4 Million request we are making will go a long way toward restoration and stabilization of the River between Chico Landing to Red Bluff.

But our primary concern in Tehama County is the Cottonwood Creek Project. Nearly thirty years of study, work, energy, hope and dreams has gone into this proposed project. Long touted as a water supply/flood control source to benefit all the State of California, this project can, with an appropriation of $5 million for fiscal year '84-'85,be ready to be begun in 1986--or so we've been told repeatedly.

Water supply for the metropolitan areas of Southern California may well be in short supply by the year 2,000. Excessive cost (up to $425/acre foot) are being cited as having brought about some reluctance for continued support of the project. Surely further foot dragging cannot help but escalate costs.

But we in the local area are exceedingly alarmed that if plans are not continued as currently scheduled, floods will grow in frequency and intensity to our defensive detriment. March 1, 1983 gave us flood of record from Cottonwood Creek, 86,000 CFS in fact, which further aggrevated our already overwhelming erosion and channel change problems in the Sacramento River.

We appreciate your support of our requests:

1) $4 million for the Chico Landing-Red Bluff Project;
2) $5 million for continued studies of the Cottonwood Creek Project.

Thank you.

SAN FELIPE DIVISION, CALIFORNIA

STATEMENT OF ALBERT T. HENLEY, GENERAL COUNSEL, SANTA CLARA VALLEY WATER DISTRICT AND SAN FELIPE COMMITTEE

Mr. **Dodson.** Next, it is a pleasure to introduce Mr. Albert T. Henley, general counsel of the Santa Clara Valley Water District and San Felipe Committee.

Mr. **Henley.** Mr. Chairman, we support the President's budget for continued construction of the San Felipe division.

We have placed in the record a written statement which will be adopted at this time as part of the record. However, I think it may be said that the San Felipe division is a signal success of Federal enterprise in this area and at that time the water will be delivered to the people and the money will be delivered to the U.S. Treasury, so that there is every reason to believe that we should proceed expeditiously and properly with this project.

I thank the chairman for his attention.

[The statement follows:]

STATEMENT OF ALBERT HENLEY, SAN FELIPE COMMITTEE, CALIFORNIA

Mr. Chairman, my name is Albert Henley, an attorney in San Jose, Calif. The San Felipe Committee, which I represent, is a duly constituted public agency of the State, being a federation of four local districts representing the service area of San Felipe division.

You and your members are, I know, fully advised regarding the nature of and the need for this vital Federal project. We will not burden your record with further statements under that head. We are gratified that we continue to have the full support of our able representatives in both Houses and of the State of California, as expressed by the California Water Commission.

You will have heard directly from the U.S. Bureau of Reclamation as to the efficient progress of construction of the Federal features of the San Felipe division. The contracts being awarded are highly advantageous from the standpoint of overall project cost, and are effectively holding Federal outlay within congressionally authorized limits. I am happy to report to you, Mr. Chairman, that the necessary local work to put the water to beneficial use is properly progressing in the service areas of San Benito and Santa Clara Counties. Our local expenditures are very considerable and will exceed one-half the Federal cost of bringing supplemental water to the people, the farms, and the industries I represent today.

Mr. Chairman, we of the service area are told we may look to completion of the San Felipe division in 1987. It has been very many years since, in 1948, the idea of such a project was first mentioned in a congressional statute—the American River Development Act—and the Secretary was first directed to study a means of bringing it about. We are grateful to this committee for your support and unfailing courtesy in hearing this and past presentations.

STATEMENT OF RONALD R. ESAU, ASSISTANT GENERAL MANAGER, SANTA CLARA VALLEY WATER DISTRICT

ACCOMPANIED BY PATRICK T. FERRARO, MEMBER, BOARD OF DIRECTORS, SANTA CLARA VALLEY WATER DISTRICT

Mr. **Dodson.** Next, Mr. Ronald R. Esau, assistant general manager of the Santa Clara Valley Water District.

Mr. **Esau.** Thank you, Mr. Chairman.

With me is a member of our board of directors, Mr. Pat Ferraro, and I would like to have you recognize him, please.

Mr. Chairman, we are submitting three statements on behalf of the district pertaining to the President's fiscal year 1985 budget in regard to work by the Corps. First, a statement supporting the President's budget in the amount of $1.3 million for construction of the Pajaro River, Uvas-Carnadero project; second, a statement requesting that funding for the authorized survey of the San Francisco Bay shoreline covering both the Santa Clara County and Alameda County be increased to $305,000; and third, a statement which urgently requests augmentation of the budget in the amount of $145,000 due to the critical need for completion in fiscal year 1985 of the Guadalupe River and adjacent stream study. This amount is necessary to complete the Coyote Creek portion of that study, that being the final step in the entire investigation. So, we would certainly appreciate your fullest consideration of these requests.

Thank you very much.

[The statement follows:]

STATEMENT OF PATRICK T. FERRARO, MEMBER, BOARD OF DIRECTORS, SANTA CLARA VALLEY WATER DISTRICT

SUMMARY

The Statement supports the President's Fiscal Year 1984-85 Budget in the amount of $1,300,000 for construction by the Corps of Engineers of the Pajaro River: Uvas-Carnadero Project, Santa Clara County, California.

BACKGROUND

The Uvas-Carnadero Creek Project is located in Gilroy in the southern part of Santa Clara County, California. In 1944, Congress authorized a levee project along Uvas Creek. This project was not completed because of lack of local support. Another study, the Pajaro River Basin Study, was authorized by Congress in 1945; a specific report on the Uvas-Carnadero Creek portion was completed in August 1975. The proposed project is a single levee on the northwest side of the creek to prevent flood flows from entering the southern part of the City of Gilroy. In February 1981, a public meeting was held by the Corps of Engineers in Gilroy. As a result of the firm citizen support given at this meeting, the Corps is proceeding with the approval stage of the proposed project which reflects an approximate $4.0 million total project cost and a 3:1 benefit to cost ratio.

The January 1982 flood seriously threatened the City of Gilroy. Fortunately, emergency actions were adequate to prevent failure of the existing below-standard levee.

The proposed project would protect about 600 existing homes, a new high school and commercial and industrial establishments from flooding. This area is that which the City of Gilroy and the County of Santa Clara have designated for development in lieu of other areas easterly of the present city which are subject to more severe flooding and in which agricultural operations are to be preserved. The project would alleviate potential damages of $23.0 million during a 1% flood event.

STUDY SYNOPSIS

The study is now in advanced engineering and design stage, Phase II of the General Design Memorandum (GDM). The final benefit/cost review is expected to again show a very strong beneficial ratio. Final design is proposed for Fiscal Year 1984 with construction starting in 1985.

The study has been funded for four years at a Federal cost exceeding $600,000, assisted by substantial local costs.

FY 1983 AND FY 1984 FUNDING

Funding for 1983 was provided in the final Continuing Appropriations Bill (Energy and Water portion) in the amount of $190,000. This provides sufficient funding to carry planning of the project through FY 1984 and to allow the project to proceed to construction in FY 1985.

FY 1985 FUNDING

The FY 1985 budget requirement to accommodate a construction start in FY 1985 is $1,300,000. This would allow completion of construction by November 1985.

RECOMMENDATION

Community development has long contemplated completion of this protection project. Support of the President's FY 1985 Budget with a Congressional appropriation of $1,300,000 for the Corps is urged to complete this last step in providing that protection.

SUMMARY

The Statement urges that the President's Fiscal Year 1984-85 Budget for the Corps of Engineers' authorized Survey of San Francisco Bay Shoreline of Santa Clara and Alameda Counties, California, be increased to $305,000 for Interim I.

BACKGROUND

The Bayfront areas of many of the San Francisco Bay counties have been adversely affected by land surface subsidence and, as a result, military installations, extensive lands, thousands of homes, business establishments and industries are subject to hazardous inundation from tides of the Bay. In Santa Clara County alone, approximately 40 square miles of land surface area is adversely affected. This area houses a number of federal installations including the U. S. Naval Air Station Moffett Field and the National Aeronautics and Space Administration's Ames Research Facility. Industrial productivity could be adversely affected by tidal flooding since defense industries such as Lockheed, and many electronics, aeronautics and space firms are located in the area. The study is essential, also, in order to permit and ensure integration of any flooding solution with protection of wetlands and wildlife refuges.

The saltwater flooding problem is particularly acute in northern Santa Clara County where the threat of flooding is an annual concern. The potential for damage grows with each year. A combination of high tides, high winds, and moderate river flows have resulted in the overtopping of the inadequate, unsound, privately-owned levee system in this area. The community of Alviso is especially vulnerable to this flood threat as evidenced by disastrous inundation in April 1982 and March 1983.

STUDY SYNOPSIS

This Corps of Engineers' survey was authorized by the 1976 Omnibus Rivers and Harbors Bill to examine the tidal flooding from San Francisco Bay. Funds were first appropriated in FY 1979 and the study has been initiated by the San Francisco District office of the U. S. Corps of Engineers. Three broadly based public meetings have been held and the San Francisco District has retained a consultant to define damage potentials and constraints and to assimilate the testimony requesting federal assistance given at those public hearings in January 1979. Work in FY 1983 consisted of topographic mapping, environmental and economic assessment of feasible actions. FY 1984 continued refinement of FY 1983 studies leading to a targeted draft study report in late FY 1985. A Final Report and EIS is scheduled for September 1986.

Funds are needed to identify the hazards from tidal inundation with an objective, scientific study. Local agencies have neither the resources nor the geographical scope to deal with this problem which affects the entire San Francisco Bay Region. Local support is very strong.

FY 1984 FUNDING

FY 1984 budget requirements to complete the study on schedule by FY 1986 were identified to be $700,000. The President's budget included $600,000 for Interim I of this project (South Alameda and Santa Clara Counties only). Congress approved $500,000.

FY 1985 FUNDING

Funds in the amount of $305,000 for Interim I are required to complete Interim I of the project. The President's budget reflects $120,000.

RECOMMENDATION

Although the President's Budget reflects limited funding of the project (Interim I) in 1985, it is important that the project proceed on schedule to completion as soon as possible. We therefore urge the necessary augmentation of the President's FY 1985 Budget, for a total Congressional appropriation in 1985 of $305,000 for Interim I.

SUMMARY

The Statement urges augmentation of the President's 1984-85 Budget in the amount of $145,000 to provide for feasibility studies on Coyote Creek as part of the Corps of Engineers' Guadalupe River and Adjacent Streams Study, Santa Clara County, California.

BACKGROUND

The Guadalupe River and Adjacent Streams Study includes the Guadalupe River and Coyote Creek. The Guadalupe River and Coyote Creek are the two major waterways that flow through the highly urbanized area of Santa Clara County, California. Historically, they have flooded the downtown areas of San Jose and Alviso beyond local capability to prevent. For example, on the Guadalupe River the estimated damages from a one percent or 100-year flood, which would inundate the urban center of San Jose, is $61,000,000. It is estimated that a 50-year flood on this river would cause $33,000,000 worth of damage under existing conditions. Damages on Coyote Creek would be $45 million during the 1% events to the north San Jose and Milpitas area. The probability of such floods occurring before implementation of flood prevention measures is quite high. A 50-year flood has an 18 percent chance of occurring during a 10-year period; a 100-year flood has about 10 percent chance of occurring during this same period. There is strong potential, therefore, that a damaging flood will occur before the problem can be resolved. The Guadalupe River had started to overflow its banks in April 1982 and January 1983 before the storm receded and avoided major damage. Even so, public and private damage amounted to several million dollars. Coyote Creek caused the greater damages, overbanking in April 1982 and March 1983. Hundreds of people were forced to evacuate their homes where water stood for many days.

STUDY SYNOPSIS

In 1971, the community asked the Corps of Engineers to reactivate its 1945 study. The Plan of Study was completed in 1973. The initial problem definition and alternative screening was completed in 1974. More detailed problem definition and alternative definitions for the Guadalupe River and Coyote Creek were completed in 1978. The third phase, study of freshwater flooding in the Baylands, was completed in 1979. The Stage 2 report was completed for the combined Guadalupe River, Coyote Creek and Baylands. The report concluded there was an economical project only on the Guadalupe River. In light of recent severe flooding, the Corps has redirected its study on Coyote Creek to address the level of protection provided by unstable levees.

In an effort to accelerate the completion of this project, the local community through the Santa Clara Valley Water District has provided a substantial amount of technical and financial assistance since 1972. Special planning studies have been completed by the District for inclusion into the Corps' studies at a cost of over $430,000. To date, therefore, over $1.9 million has been expended on this study.

The recent severe flood problem and the ominous threat of future damages has forced the local community to initiate a local project on Coyote Creek in anticipation of future federal participation. Nearly $3.0 million will be spent on the planning, design and construction on Coyote Creek in 1984, which is planned for incorporation into the federal project. However, without federal assistance needed flood protection cannot be achieved. The necessity to reduce Federal expenditures to meet economic goals is recognized. Nevertheless, projects such as the Guadalupe River and Adjacent Streams, where costly studies are nearly complete and economic feasibility has been established, should continue to be adequately funded.

FY 1984 FUNDING

Funding for 1984 as approved by Congress is $265,000. This funding maintains the schedule necessary for completion of the Guadalupe River Feasibility Report and Environmental Impact Statement in late FY '84. It also includes $95,000 for revaluation of flooding along Coyote Creek. The $95,000 was a special add-on to the 84' budget following the severe 1983 floods.

NECESSARY FY 1985 FUNDING

Funding during 1985 in the amount of $145,000 is essential to continue the study of Coyote Creek flood problems. Future funding for the Guadalupe River Project, if necessary, would be solicited from the Corps' Continuing Planning and Engineering Program (CP&E) following final project alternative formulation.

RECOMMENDATION

The very high flood risk and potential damage, coupled with proposed legislation (H. R. 3678) which could lead to future authorization of a project on Coyote Creek (as well as the Guadalupe River) leads us to urgently request augmentation of the President's 1985 Budget by Congressional appropriation of $145,000 to continue the feasibility of such a project as part of the Guadalupe River and Adjacent Streams Study.

UNITED WATER CONSERVATION DISTRICT LOAN

STATEMENT OF G. I. WILDE, GENERAL MANAGER, UNITED WATER CONSERVATION DISTRICT

ACCOMPANIED BY:

TIM THOMPSON, PRESIDENT
EUGENE PERELLO, DIRECTOR
JOHN K. FLYNN, SUPERVISOR, VENTURA COUNTY

Mr. DODSON. It is now my pleasure to introduce Mr. Herb Wilde, general manager of the United Water Conservation District, Ventura County.

Mr. WILDE. Mr. Chairman, my name is G. I. Wilde. I am manager of the United Water Conservation District in Ventura County, Calif.

Our problem involves one of seawater intrusion into the freshwater aquifer underlying the coastal plain of Ventura County. We have addressed the problem on a joint venture with the county of Ventura. Supervisor John Flynn is present and I would like to introduce him at this time. We are under a joint power project and progressing on this project and have completed the first phase of the project.

By the way, I would like to point out that in connection with that phase of the project we have generated $7 million of local funding and have that $7 million grant from the State Water Resources Control Board. We are now requesting $2.5 million for fiscal year 1985 to get underway with the phase 2 aspect of that project known as the Freeman diversion project.

We have filed a statement and we ask that that be included in your record.

Mr. WILDE. At this time, Senator, Supervisor John Flynn may have a few words he wants to say.

Mr. FLYNN. Thank you very much.

Mr. Chairman, I would like to associate myself for the record with the comments made by Mr. Wilde and also the written testimony that he has submitted on behalf of the United Water Conservation District.

I am the county supervisor of Ventura County, Calif. The county supports the project 100 percent. We do need the funding for phase 2, the $2.5 million, in order to really make phase 1 work which has already been completed.

CHANEL ISLAND HARBOR, CALIF.

I also for the record would like to associate myself with the testimony given earlier today by Congresswoman Bobbi Fiedler and her comments on the Calleguas Creek study, on the Channel Island Harbor project, and on the erosion study that is needed along the California coast, especially in Ventura County.

Thank you very much, Mr. Chairman.

Mr. WILDE. Mr. Chairman, before we close I would just like to introduce Tim Thompson, president of our board of directors of the United Water Conservation District.

Tim.

Mr. THOMPSON. Thank you, Mr. Chairman.

We do appreciate the opportunity to speak to you and we appreciate your consideration of our project, it is a critically needed project in our area. We have one of the most critical seawater intrusion in the State and we are attempting to deal with this with both your participation as well as the funding for the project.

Thank you.

[The statements follow:]

STATEMENT OF UNITED WATER CONSERVATION DISTRICT, CALIFORNIA

PROJECT TITLE. FREEMAN DIVERSION IMPROVEMENT PROJECT

APPLICANT - United Water Conservation District of Ventura County, California.

PROBLEM AND LOCATION. Seawater Intrusion on the Oxnard Coastal Plain, Ventura County, California, acknowledged to be by far the most severe problem of its kind in the state.

PROJECT PURPOSE. To Increase diversions of Santa Clara River waters for use in controlling the advance of seawater intrusion into the underground aquifers of the Oxnard Plain.

PROJECT AREA AND POPULATION.

Irrigated Agriculture	39,150 Acres
Total Area of Benefit	69,200 Acres
Total Population	162,000

ESTIMATED COST AND FINANCING PLAN.

Total Project Costs: ---------- $19,556,000

Financing: Federal loan, under the Small Reclamation Projects Act, P. L. 84-984, as amended.

Total Appropriation Requirement: ---------- $18,227,300

APPROPRIATION REQUEST FOR FY 1984-85. The amount of $2.5 Million is requested for appropriation in FY 1984-85, as the first year of a two-year construction program.

URGENCY FOR RESOLVING PROBLEM. Seawater has already intruded into the freshwater aquifers underlying 25% of the Oxnard Coastal Plain, as depicted on Figure I appended as the last page of this statement. Its further advance must be halted without delay, which is vital to preserving and maintaining the economy of the entire area.

FREEMAN DIVERSION IMPROVEMENT PROJECT

LOCATION

The Freeman Diversion Improvement Zone (FDIZ) is located in Ventura County, California, along the Pacific Coast 60 miles westerly from Los Angeles. It includes the Oxnard Plain, of which the City of Oxnard is the center.

ORGANIZATION

The FDIZ is the zone of project influence which is under the jurisdiction of the United Water Conservation District (UWCD).

UWCD, which is making the application for the Small Reclamation Projects loan proposed herein, is the entity which will contract with the United States for loan repayment. It has authority on behalf of the zone to contract with the United States under the Federal Reclamation Laws, and the power of eminent domain.

HISTORY OF PROBLEM

Historically, substantially more water has been pumped from the underground aquifers than has naturally and artificially been replaced. This "overdraft" situation has resulted in seawater intrusion into the Oxnard Aquifer, as shown on Figure I, extending over a 20.9 square mile area. In recent years, the seawater intrusion front has advanced inland at an average annual rate of approximately 1,000 feet per year. For several decades, the United Water Conservation District has been conducting ground water recharge operations for the purpose of alleviating the seawater intrusion problem.

In basic concept, the plan now is to reduce the pumping draft on the intruded aquifer by taking 47 agricultural wells out of service and providing other sources of water to the lands which those wells serve. It is a two-phase project. Phase

I, at a cost of $15 Million, is nearing completion. Phase II involves the Freeman Diversion Improvement Project, the subject of this request for appropriation of funds.

THE PROJECT PLAN

Purpose. The basic purpose of the Freeman Diversion Improvement Project is to increase the volume of water that can be diverted from the Santa Clara River to the maximum practical extent to retard the advance of sea water intrusion into the Upper Oxnard Aquifer system. In addition, it will eliminate the recurring cost of replacement of the diversion facilities.

Physical Works. The principal project features are:

1. Freeman Diversion Structure, located on the Santa Clara River about 3,300 feet upstream of the original structure, at the mouth of Todd Barranca, is an overflow type structure with a crest length of 1,200 feet. The crest of the overflow section rises only 10 feet above the present stream bed but the maximum height of the entire structure, which rests on bed rock, is 53 feet. The superstructure, is of reinforced concrete resting on an unreinforced concrete base. Extension of the structure base to bedrock was considered to be essential because of the uncontrolled stream bed degradation downstream of the site.

2. The connecting canal, located along the left bank of the river, connects the diversion structure with the existing wasteway and conduit inlet, located at the site of the original diversion structure.

3. The fishway, located along the river side of the connecting canal is a reinforced concrete structure 190 feet long with a width of 10 feet, providing a 1 foot drop every 10 feet throughout its length. A stainless steel fish screen 400 feet long with a height of 4 feet is located in the connecting canal a short distance below the intake structure.

4. The proposed settling basin is located 2300 feet below the existing wasteway and conduit inlet structure along the river side of the canal leading to the existing Saticoy Spreading Grounds. O&M equipment, consisting of a dredge to remove accumulated sediment from the settling basin, is also included as part of the project.

Land Use

		Land Use Class		
Year	Agriculture	Urban	Military	Open Space
1985	39,412	19,756	5,797	4,041
1990	38,323	21,023	5,797	3,873
2000	36,124	23,558	5,797	3,537
2010	33,925	26,093	5,797	3,201

Land Ownership - It was found that, of the present 39,150 acres of irrigable land within the FDIZ service area, 1,914 acres, or 4.89 percent of the irrigable acreage was held in excess of the ownerships permitted by Public Law 97-293.

WATER REQUIREMENTS AND SUPPLIES

Water Requirements. Unit annual water requirements, are 2.7 acre-feet per acre for irrigation and 0.22 acre feet per capita for M&I use. Unit requirements applied to projected irrigated acreage and population give the following average annual requirements:

Annual Water Requirements

Year	Irrigated Acreage	Irrigation Requirement A.F.	Population	M&I Requirement A.F.	Total Requirement A.F.
1985	38,578	104,161	166,387	36,605	140,766
1990	37,760	101,952	185,457	40,800	142,752
2000	36,124	97,535	223,260	49,117	146,652
2010	33,925	91,598	261,765	57,588	149,186

Water Supply (Average Year)

Usable Diverted Flows

Delivered To	Without Project-A.F.	With Project-A.F.	Project A.F.
O-H Pipeline	7,024	9,439	2,415
PV & PT Pipelines	4,852	11,828	6,976
Ground Water Recharge	31,056	34,406	3,350
Total	42,932	55,673	12,741

Imported Water - The City of Oxnard imports California State Project water through the Calleguas Municipal Water District. It is expected to continue using imported water at about the same ratio to its use of local water as it has in the past.

Ground Water - Those water requirements which cannot be satisfied by the surface water diversions and imports listed above must be furnished by ground water pumping.

Water Operations - Water diverted at the improved Freeman Diversion will continue to be delivered to the Saticoy and El Rio Spreading Grounds and through the O-H Pipeline and the PV Pipeline to the distributors, as it has in the past, but in increased amounts. Thus, by replacing with additional surface water the ground water, which has formerly been pumped from the Upper Aquifer System, and by increasing the surface water used to recharge the Upper Aquifer System, the new water developed by the Freeman Diversion Improvement Project will decrease the rate of encroachment of sea water into the Upper Aquifer System.

FINANCIAL SUMMARY

Project Costs

Freeman Diversion Structure	$7,894,360
Connecting Canal	1,834,260
Fishway and Fish Screen	188,800
Settling Basin	1,169,880
O&M Equipment	131,000
Contingencies	2,243,700
Projected Cost Increase	2,240,000
Engineering and Administration	2,355,300
Interest During Construction	473,700
Rights-of-Way	550,000
Hydraulic Model and Foundation Studies	125,000
Bureau Participation	200,000
Loan Application Report	150,000
Total Project Cost	$19,556,000

Annual Payment Resources

Year	Irrigation Water	M&I Water	Total
1987	$763,022	$635,457	$1,398,479
1990	760,150	644,727	1,404,877
1995	755,363	660,177	1,415,540
2000	750,513	675,833	1,426,346
2005	746,428	689,017	1,435,445

REPAYMENT SCHEDULE

Year	OMP&R	Reserve	Loan Repayment	Total Cost
1987	$195,900	$20,000	$1,247,313	$1,463,213
1990	195,900	20,000	1,243,914	1,459,814
1995	195,900	20,000	1,238,325	1,454,225
2000	195,900	0	1,252,862	1,448,762
2005	195,900	0	1,245,706	1,441,606
Total Period	$3,918,002	$200,000	$24,689,605	$28,807,607

Financial Feasibility - An analysis made of the total of all water costs chargeable to the PVCWD lands (those lands within the service area of the FDIP believed to have the heaviest financial obligations) found that the total of all costs on an acre-foot basis was $71.92, compared with a capacity to pay irrigation water charges of $82.82. The project is therefore considered to be financially feasible.

STATEMENT OF JOHN K. FLYNN, BOARD OF SUPERVISORS, VENTURA COUNTY AND VENTURA COUNTY FLOOD CONTROL DISTRICT, CALIFORNIA

My name is John K. Flynn. I am a member of the board of supervisors of both the county of Ventura, Calif., and Ventura County Flood Control District.

I am appearing today to urge your inclusion of $320,000 in the Corps of Engineers' budget to continue the current general investigation of the Calleguas Creek watershed in Ventura County, Calif. These funds will provide funding for the second year of a study scheduled for completion in 3 years.

In 1980 and 1983, Calleguas Creek overflowed its banks and caused sufficient damage on adjacent lands to warrant Presidential declarations of disasters. Resulting flood damage to public and private facilities was in excess of $42 million. In 1980, the flooded area included the Navy's Pacific Missile Testing Center at Point Mugu where 3,000 people were evacuated.

Much of the damage resulted from failures of U.S. Department of Agriculture, Soil Conservation Service, facilities which were originally installed between 1952 and 1961 to provide protection to adjacent agricultural land. Unfortunately, by today's standards, and as demonstrated by the recent flood damages, these facilities are no longer able to provide an adequate level of protection.

The Calleguas Creek study was originally authorized by Congress in 1965 and implemented in 1967. Because of changing Federal standards relating to project justification, the study was placed on inactive status in the late 1970's. The recent major flood damages caused revival of the study last year and remain a strong impetus for continuation. We understand the study to date indicates potential for a viable project. This project has the support of involved local public and private groups and the California Water Commission. The flood control district and other agencies have provided necessary assurances in support of the project in the past and will do so in the future.

We respectfully request your inclusion of $320,000 for the Calleguas Creek investigation in the budget.

Thank you for your courtesy in allowing me to present this statement.

CLOSING REMARKS AND ADDITIONAL PREPARED STATEMENTS

Mr. DODSON. Mr. Chairman, I can't believe it, but 35 minutes and we have gone through our witness list.

Senator MATTINGLY. That is a new record for us.

Mr. DODSON. I beg the staff not to chop the 5 minutes off of our next year's allotment, please.

Senator MATTINGLY. We will try to do as best we can.

Mr. DODSON. Thank you very much.

Senator MATTINGLY. Thank you very much, Mr. Dodson, and all of you for your testimony and interest in these projects.

Mr. DODSON. It is a pleasure to have been here and we thank you for pitchhitting for us so we could get along.

We have several prepared statements which have been submitted that I ask be incorporated in the record of the hearing.

Senator MATTINGLY. Yes; without objection, all of your additional statements will go into the record at this point.

[The statements follow:]

STATEMENT OF THE SAN BENITO COUNTY (CALIF.) WATER CONSERVATION AND FLOOD CONTROL DISTRICT

The San Benito Water Conservation and Flood Control District Directors have instructed me to urgently request the appropriations totaling $74,736,000 for Bureau of Reclamation facilities and $3,012,000 for the last phase of construction of the water distribution system to be constructed by the District, funding that has been approved by the California Water Commission. The $74,736,000 is for various facilities being constructed by the Bureau of Reclamation including the Pacheco Tunnel, Pacheco Pumping Plant and Switchyard, Pacheco Conduit, Santa Clara Conduit, Hollister Conduit and other features including Planning and Ground Preparation. The $3,012,000 is the fifth and last appropriation for the P.L. 84-130 loan agreement of $19,900,000 which the San Benito County Water Conservation and Flood Control District has with the Bureau of Reclamation. This is for the purpose of constructing the water distribution pumping stations and percolation areas of Zone VI, the zone of benefit for imported San Felipe Water. The District is contributing $2,059,000 to the $21,959,000 cost of the distribution system.

The Pacheco Tunnel, one of the main features of the San Felipe Project, is finished. The second feature of importance is the Santa Clara Tunnel which is approximately 1.1 miles long. This tunnel has been completed. The first section of the conduit system has been laid around the City of Hollister. There are seven other ancillary systems to the San Felipe Division, all of which should be completed just prior to availability of water from the Pacheco Tunnel. This will provide the earliest possible cash flow and initiation of payback to the Bureau of Reclamation.

The water from the San Felipe Division is desperately needed to sustain an existing agricultural economy and community in San Benito County - not bring new lands into production.

The zone of benefit (Zone VI) consists of family farms with the owners living thereon and the Cities of Hollister and San Juan Bautista. This area now obtains its total water requirements by pumping from underground aquifers which are rapidly being depleted through overdraft, and water quality is deteriorating. This condition exists even though water from Hernandez Dam (18,500 acre feet), Pacines Reservoir (7,000 acre feet), Pacheco Dam 6,000 acre feet), and all treated waste water from Hollister and San Juan Bautista is being percolated into the underground.

Water use is increasing within the zone of benefit. Population has increased by 33% during the last 10 years according to the 1980 census with many new households. Agriculture is consuming more water through increasing production of intensive crops. Crops with a high water requirement such as garlic, lettuce, onions, bell peppers, tomatoes, vegetable and flower seeds are replacing pears, prunes and apricots.

The declining water table and the intrusion of water bearing toxic quantities of boron and chlorides have already caused a change of 13,000 acres of high quality land to low income, hazardous dry farming. These lands will be retained in intensive agriculture with the availability of high quality San Felipe water.

Land subsidence will be curtailed or perhaps eliminated by replenishing underground water storage through percolation of San Felipe water into stream beds. This stored water will be available for use in those years when San Felipe water may not be available in the required quantity.

San Felipe water will replace local municipal and industrial water which is below public health standards because of high chloride content.

In a county with as high an unemployment rate as San Benito County has, and the unusually high unemployment figures in the construction and heavy equipment fields in this whole area, the San Felipe Project and the distribution system being constructed by the San Benito County Water Conservation and Flood Control District will allow many of these unemployed to find jobs and return to gainful employment. In the San Benito County Water Conservation and Flood Control District distribution system alone, if sufficient funds are received, there will be more than 100 people working on this pipeline. Many of these workers belong to minority groups, a fact we should not ignore.

San Felipe water will be supplied directly to 19,700 acres under pressure sufficient for sprinkler irrigation. The pressure will be mostly provided by the head efficiently developed by large capacity pumps which will lift the water from San Luis Reservoir 250 feet to the Pacheco Tunnel entrance. Fire control will also be augmented by this pressurized water. The remainder of the water needs will be supplied by local runoff waters that will be percolated into the underground through stream beds and percolating ponds.

Contracts have been awarded for all of the 9 sub-systems of this distribution system. These sections of the system consist of approximately 80 miles of pipe varying in size from 6 inches to 33 inches. Included in the contracts are water turnouts to approximately 440 users. The bids proved very attractive for these sections of the distribution system, all being well below engineers estimates.

It is essential that appropriations for this P.L. 84-130 loan continue in an orderly manner and on schedule as it appears in the P. L. 84-130 loan application. The payback contract between the United States and the San Benito Water Conservation and Flood Control District calls for completion of the distribution system five years after the first monies become available. The first appropriation was for Fiscal Year 80-81 which means we must complete the system by the end of 1985.

The people of Zone VI (the zone of benefit within the San Benito County Water Conservation and Flood Control District) through a plebiscite have overwhelmingly affirmed a contract with the Bureau of Reclamation to purchase water and to obligate themselves to borrow $19,900,000 through a Public Law 84-130 loan to construct the necessary distribution facilities.

Further evidence of the eagerness of the people of San Benito County for the completion of the distribution system is the fact that all rights of way for this pipeline, both temporary and permanent, have been donated to the District, with no Federal or District funds being spent for these rights-of-way. This is saving of an expenditure that could amount to quite a large sum of money as there is 80 miles of pipeline in the system.

The California Water Commission has endorsed and supports the request we have made for the 1985 budget.

San Benito County urgently requires supplemental water as soon as possible to maintain the quality of life of its citizens by insuring the stability of its major industry -- agriculture.

We earnestly request the Congress of the United States to appropriate $74,736,000 as established by the Bureau of Reclamation to finance proposed work on the San Felipe Division Project for the Fiscal Year 1984.

We also request the Congress to approve $3,012,000 as the last appropriation for an approved P. L. 84-130 loan to finish construction of the San Benito County Water Conservation and Flood Control District Zone VI distribution system.

STATEMENT OF GARVIN H. WHITE, PRESIDENT OF THE BOARD OF DIRECTORS, KINGS RIVER CONSERVATION DISTRICT, CALIFORNIA

My name is Garvin H. White and I am President of the Board of Directors of the Kings River Conservation District of Fresno, California. I am appearing today in support of the Redbank-Fancher Creeks Flood Control Project.

My purpose before the Committee is to request that federal funding to support construction design be included in the budget for the 1983-84 fiscal period in an amount not less than the $900,000 currently provided in the President's proposed budget.

The Redbank-Fancher Creeks project was initially identified in the Big Dry Creek project investigation authorized by the Congress in 1940. In 1956, the Congress specifically authorized the flood control project investigation for the Redbank and Fancher Creeks stream system. Unfortunately, federal funds for the investigation were not appropriated until Fresno County was declared a part of the 1969 California disaster area. Since that time, however, the Congress has made funds available to meet the Corps' needs in the project investigation. That investigation is now complete and identifies the need for the project, proving it to be both economically justified and environmentally sound.

Noteworthy, is the fact that the Redbank-Fancher Creeks project is one which is economically justified on the basis of flood damage prevention alone. Though other benefits accrue from the project, they are not required to produce a positive benefit-cost ratio. When constructed, the project will provide protection to 57,000 acres containing a population in excess of 120,000 people at a benefit-cost ratio of 1.3 to 1.0. Total estimated average annual flood damages exceed $11,000,000 and affect both urban and agricultural properties. The proposed works will also protect an open irrigation canal system which transverses 210,000 acres of the world's most productive agricultural lands, Fresno County's annual production exceeding one billion dollars. The project will control the historic flooding which has seen the stream and canal systems overtop their banks an average of once every four years since 1953.

In July 1980, the completed investigation report was forwarded to the Chief of the Corps by the Board of Engineers of Rivers and Harbors. The report was subsequently forwarded to the Secretary of the Army for transmission to Congress. The project has been included in authorization legislation passing the House of Representatives during two recent sessions of the Congress. Though not enacted, the specially worded authorization reflected the awareness of the Congress of the project's special needs. The project is now included in S.1739 and H.R.3678 authorizing project construction. Congressional action effecting the requested appropriations is critical in that it will prevent additional delay, saving an estimated twenty percent in increased project costs.

I appreciate the privilege of appearing before the Committee and the past support the Committee has given the project. I respectfully urge your continued support and ask that my statement be made a part of the hearing record.

A more detailed presentation accompanies this request.

The Kings River Conservation District and the people of the central county area of Fresno County, California are deeply appreciative of the opportunity to have our presentation heard by the honored members of the Congress. While the Redbank-Fancher Creeks Flood Control Project is not large by some standards, it is critically important to the Fresno-Clovis metropolitan area which is the business center of the most productive agricultural county in the world; gross production exceeding 1.8 billion dollars annually in 1982.

This statement has been prepared to substantiate and support the vital need for flood control works on Redbank and Fancher Creeks. These two uncontrolled natural streams are related to and are a part of the San Joaquin-Kings River Interstream Group which were included in the San Joaquin River Basin Survey by the Corps of Engineers for more efficient management of the investigations. The Redbank and Fancher Creeks study was removed from the Interstream Group and listed as a separate project when the South Pacific Division of the Corps forwarded the completed feasibility report and the required environmental impact study to the Board of Engineers of Rivers and Harbors in July 1977.

AUTHORIZATION:

The Congress, on June 13, 1956, authorized the Corps of Engineers to investigate the feasibility of a federal flood control project for the Redbank-Fancher Creeks stream group, following the major floods of 1955 and 1956. Unfortunately, funds were not provided and the Corps did not begin the investigation until the area had suffered its worst flooding in history during January and February of 1969. The release of funds and the start of the investigation occurred in July 1970, some fourteen years after Congressional authorization.

PROJECT LOCATION AND NEED:

Redbank and Fancher Creeks, their tributaries and related streams addressed by the proposed project, are located on the western slope of the Sierra Nevada. The watershed encompasses some seventy-five square miles and generates storm runoff which flows through the heart of the metropolitan area. The flows impact directly on the open irrigation canal system which transverses some 210,000 acres of the world's most productive agricultural land and 45,000 acres of a densely developed urban community with a population in excess of 350,000.

It is currently estimated that the flood plain to be protected by the proposed project includes 57,000 acres with a population of 120,000 and a market value in excess of 2.4 billion dollars. Total estimated average annual flood damages exceed $11,000,000 and affect both urban and agricultural properties.

HISTORY OF FLOODING:

As a result of the uncontrolled nature of the subject stream group, flooding has occurred frequently. Floods of record occurred in March 1938, December 1955, January 1956, January 1969, February 1969, March 1978 and January 1983. In addition, available records indicate flooding of lesser severity occurred in 1952, 1958, 1965, 1972, and 1977 with the streams and irrigation canal system overtopping their banks on the average of once every four years since 1953.

Although the recent floods which occurred in March 1978 and January 1983 were of a lesser magnitude than those of 1969, thousands of dollars in damages to private homes, public roads, irrigation facilities and hundreds of acres of prime agricultural lands were experienced. Such floods again demonstrated the urgent need for immediate construction of flood control works.

LOCAL SUPPORT:

Following the floods which occurred in January and February 1969, the Fresno Area was declared a part of California's disaster area. With the realization that millions of dollars in flood damages could have been prevented and that a recurrence of such floods would be even more devastating, a public hearing on the subject of needed flood control works was held on February 28, 1969. Hundreds of the community's citizens representing some seventy-five public and private organizations met and drafted resolutions to the U.S. Army Corps of Engineers and legislative representatives urging the active pursuit of

Redbank-Fancher Creeks flood control project. Subsequently, the County of Fresno, the Cities of Fresno and Clovis, the Fresno Metropolitan Flood Control District, the Fresno Irrigation District, and the Kings River Conservation District authorized direct work with the Corps of Engineers and the Congress to secure adequate flood protection for the Fresno-Clovis metropolitan area.

In an effort to ensure the availability of lands needed for the required flood control structures, the County of Fresno acting jointly with the Fresno Metropolitan Flood Control District did, on October 22, 1974, effect open-space and conservation zoning of approximately 500 acres. More recently, the Cities of Clovis and Fresno, the County of Fresno, and the Fresno Metropolitan Flood Control District, have signed contracts appropriating $335,000 per year to acquire the necessary project lands.

ENVIRONMENTAL CONSIDERATIONS:

Upon completion and distribution of the Draft Feasibility Report and Draft Environmental Impact Statement, a public hearing was held within the project area by the Fresno Metropolitan Flood Control District, the local project sponsor, and the U.S. Army Corps of Engineers. Testimony submitted during the subject hearing indicated that there are no areas of controversy associated with the project or its limited environmental impact. In summary, the testimony received confirmed the accuracy of the Draft Environmental Impact Statement in identifying only limited impacts and the adequacy of the proposed mitigation measures. It was also apparent that any adverse environmental impact which might be associated with the project during the brief construction period would be of a temporary nature and insignificant when compared with the permanent environmental and social benefits which would be derived by the construction of the needed works.

PROJECT FEASIBILITY AND FINANCING:

The completed report, supplemented by additional detailed studies, substantiates the need for the proposed project and identified strong economic justification. The project costs and benefits reflected in the completed report are as follows:

Total First Costs: (1983)	$81,300,000	
Average Annual Costs (8-1/8% Interest)		$7,810,000
Total Average Annual Benefits:		
Flood Control	7,132,000	
Flood Proofing Costs Reduction	424,000	
Recreation	934,000	
Total Average Annual Benefits		$8,490,000

However, during the project's construction design, changes approved by the local sponsor have modified the estimated project costs and benefit totals as reflected below.

Total First Costs:	$73,300,000	
Average Annual Costs (8-1/8% Interest)		$6,179,000
Total Average Annual Benefits:		
Flood Control	6,606,000	
Flood Proofing Costs Reduction	393,000	
Recreation	865,000	
Total Average Annual Benefits		$7,864,000

Benefit/Cost Ratio 1.3 to 1.0

It should be noted that, while not included in the actual benefit calculations, the proposed project will also create significant beneficial effects in the areas of water conservation, groundwater management and wildlife enhancement.

The anticipated distribution of project costs between the Federal Government, the state of California, and the local sponsor is as follows:

Federal Government	$57,540,500
State of California	11,801,300
Fresno Metropolitan Flood Control Dist. (Plus Annual O & M @ $230,000)	3,958,200
Total Project Costs	$73,300,000

PROJECT STATUS REVIEW:

Review of the completed project report by the Division Engineer resulted in his concurrence with the investigative conclusions of the District Engineer.

Since the completion of the Division Engineer's review, additional study was undertaken at the request of the Board of Engineers, that additional study similar to that normally performed during the Phase I study which follows project authorization. Unfortunately, the additional study delayed the project for approximately two years causing an estimated seventeen percent increase in project costs.

During July 1980, the Board of Engineers of Rivers and Harbors forwarded to the Chief of the Corps of Engineers the completed project report and environmental impact report. The report was subsequently forwarded to the Secretary of the Army for transmission to the Congress.

The project has been included in legislation passing the House of Representatives during two recent sessions of the Congress. Though that legislation was not enacted, the specially worded authorization reflected the awareness of the Congress of the special needs associated with this project. As a result of these factors, the project has been approved for continued engineering and design and is now completing the second year of such engineering work. The requested appropriation will fund the third, and next-to-last, year of project construction design.

The project is included in the pending water resources development legislation (S.1739 and H.R.3678), providing for final construction authorization. Timely action by the Congress effecting the necessary authorizations and appropriations will save as much as an additional two-year delay in the project, thereby saving the taxpayers further significant increases in project costs.

CONCLUSION: REQUEST FOR AUTHORIZATION

On June 13, 1983, twenty-seven years had elapsed since Congress first authorized the proposed Redbank-Fancher Creeks Flood Control Project. The need for the project has been identified in a total of eight different studies and investigations performed at both the local and federal level. The project feasibility investigation completed in July 1977 confirms the project need and identifies strong economic justification for project construction. Further, the more advanced and detailed technical analysis performed for the Board of Engineers has confirmed the previous recommendations of both the District and Division Engineer of the Corps.

Because it is our belief that the proposed Redbank-Fancher Creeks Flood Control project has met all requirements for federal participation and meets all current standards of economic justification and environmental projection, we most respectfully urge the favorable action of the Committee and the Congress in authorizing the Redbank-Fancher Creeks Flood Control Project funding.

STATEMENT OF THE RIVERSIDE COUNTY (CALIF.) FLOOD CONTROL AND WATER CONSERVATION DISTRICT

SUMMARY RECOMMENDATIONS

SANTA ANA RIVER - MAIN STEM

Phase II Studies	$3,500,000.00

SANTA ANA RIVER AND ORANGE COUNTY

Interim Report No. 2	$400,000.00	
Interim Report No. 3	$550,000.00	
		$ 950,000.00

SANTA ANA RIVER - MAIN STEM

The report of Santa Ana River - Main Stem, including Santiago Creek, California, Phase I, has been completed and the Chief of Engineers has submitted that report to the Secretary of the Army. The report recommends construction of the All River Plan which consists of a dam near Mentone, California; enlargement of the existing Prado Dam near Corona, California; channel improvements along the river in Orange County; improvement of the Oak Street drain channel in Corona, California; and improvement of Santiago Creek in Orange County. The All River Plan was developed over a period of several years of study by the Corps of Engineers and agreed to in concept by the three affected Counties, i.e., Orange, Riverside and San Bernardino, and the State of California.

Subsequent to completing the Phase I report on the Santa Ana River, All River Plan, certain interests in San Bernardino County expressed concerns over the Mentone Dam. The Boards of Supervisors of Orange, Riverside and San Bernardino Counties, after meetings and discussions with the Corps of Engineers, have agreed on language authorizing the project, insuring that the concerns of the individual counties including the Mentone Dam concerns are addressed during the Phase II design studies.

The Santa Ana River Main Stem project is contained in Water Resource authorization bills now being considered by the Senate (S1739) and House (HR 3678).

In order to keep this critical project on schedule, it is vital that the Corps of Engineers get sufficient funding consistent with their ability to manage this project. The Corps has projected a schedule to complete the General Design Memorandum for the entire "All River Plan" project by early 1988. In order to meet that schedule the Corps of Engineers will require $3,500,000 in fiscal year 1985. The President has recommended $2,500,000 for FY 1985. Funding at that level will set back completion of the General Design Memorandum one year to 1989. Studies were started on the Santa Ana River in 1965, the project has been well defined and has the support of the three affected counties. We recommend and strongly support a funding level of $3,500,000 for the Santa Ana River, Main Stem project in fiscal year 1985.

Santa Ana River and Orange County

The Corps of Engineers has been studying certain specific flooding problems along streams tributary to the Santa Ana River and in Orange County since the mid 1970's. For the past three years they have concentrated efforts on a study of the flooding problems around Lake Elsinore in Riverside County. The results of this study will be published as Interim Report No. 4 on the Santa Ana River and Orange County later this year.

There are also studies that must be completed on other streams in Orange County (Interim Report No. 3) and tributary streams to the Santa Ana River in Riverside and San Bernardino Counties (Interim Report No. 2). Included in Interim Report No. 2 are studies of the feasibility of extending the levee along the San Jacinto River approximately four miles further downstream. Flooding has occurred along this reach of the river in 1978, 1979, 1980.and 1983 which required flood fight effort to keep the stream within the existing banks. The flood of February 1980 breached the local levees and caused extensive flooding damages to valuable agricultural land, closed major roads and highways, destroyed one major county road and caused considerable economic losses in the Hemet-San Jacinto Valley in Riverside County. Riverside County, including this area, is the fastest growing area in the United States. Future floods will cause even greater economic loss.

The Los Angeles District of the Corps of Engineers estimates it will take $400,000 to continue studies for Interim Report No. 2 for streams in Riverside and San Bernardino Counties and $550,000 to continue studies on streams in Orange County. We support funding these studies at these levels and the California Water Commission supports this level of funding. The President's budget recommends only $300,000 for Santa Ana River and Orange County for FY 1985. We urge the Committee approve $950,000 for Santa Ana River and Orange County in FY 1985.

STATEMENT OF THE AMERICAN RIVER AUTHORITY

The American River Authority requests your support for funding the Auburn Dam. The ARA was formed by a Joint Powers Agreement between Placer and El Dorado Counties and the Placer and El Dorado County Water Agencies. The ARA was created out of a firm conviction that the completion of the Auburn Dam is in the crucial interests of the surrounding communities and the citizens therein. The ARA's function is to examine and consider participation in the planning, financing, construction, and operation of the Auburn Dam project.

The estimated power generated by this project is 300 megawatts; the benefit to cost ratio is 1.24:1; and the water storage capacity would be 2.3 million acre feet.

Those figures represent benefits of irrigation water supplies for Placer and El Dorado Counties; flood control for Sacramento County; fisheries; and recreational facilities for the Northern California area.

Along with those benefits, there is a strong indication that local agencies have a high degree of interest in participating in the construction of the power generating facilities at Auburn Dam. In fact, in the near future there is an excellent possibility that local agencies will offer to fully fund the power generating facilities at the Auburn Dam.

The ARA supports a total appropriation of $5.25 million for the Auburn-Folsom South Unit Project. The 1985 proposed federal budget presently includes $3.5 million for this project; however, in order for substantive work to be done, the additional funding is necessary. With the completion of this work, a definitive cost-sharing policy can be determined. The ARA aims to be a part of that cost-sharing policy. It is the ARA's desire to move ahead effectively toward the development of the Auburn Dam project and wholeheartedly requests your support.

STATEMENT OF JACK KELLY, MAYOR, HUNTINGTON BEACH, CALIF.

Mr. Chairman and members of the Committee: I am Jack Kelly, Mayor of the City of Huntington Beach, California. Huntington Beach is located along the coastal plain of Orange County, adjacent to the Santa Ana River.

I appreciate the opportunity to appear before you on behalf of the City Council and the 180,000 citizens of the City of Huntington Beach.

Summary of Requests

The City of Huntington Beach, California is hereby requesting that your Committee recommend to the Congress and the President of the United States that an appropriation of $550,000 be made in Fiscal Year 84-85 for completion of the Corps of Engineers Interim Report III, Orange County Tributaries, which include the Huntington Beach, Talbert and Wintersburg Flood Control Channels in the City of Huntington Beach.

The City is further requesting that you recommend to Congress and the President, an appropriation of $3.5 million in Fiscal Year 84-85 to keep the Corps of Engineers on schedule for completion in 1988 of the Phase II, General Design Memorandum, for the Santa Ana River Main Stem Project.

Basis for Requests

Huntington Beach is a low-lying City with much of its area reclaimed from peat bogs and marshland. During the 1960's & 70's, it was among the fastest growing cities in the United States, rising from a population of 11,500 in 1960 to 172,000 in 1980.

The major flood control channels in the City empty directly into the Pacific Ocean adjacent to the Santa Ana River. They were constructed by the City and the County of Orange using a combination of 1956 Bond Act funds and contributions from private developers. The channels were built with earthen walls designed to handle a 25 year storm with the intention that future funding would allow construction of concrete lining for the channels. Because Huntington Beach is flat and low, most of the channels are in a leveed condition, that is, the top of the channels are considerably higher than the level of the surrounding land. At the present time, 90% of the surrounding land is developed with residential homes or commercial shopping centers. Typically, during a storm, water is collected in local storm drains and pumped into these flood control channels. When flowing full, the water level in the channels may be at roof-top level of adjacent homes.

A significant factor in the potential of these channels overflowing their banks is the tidal influence of the Pacific Ocean which during a high tide will bring salt water at levels of two to seven feet deep up to four miles inland in the flood control channels.

On March 1, 1983, the City of Huntington Beach received nearly three inches of rainfall in five hours, while a high tide of 5.5 feet was being pushed up the flood control channels by heavy surf conditions in the Pacific Ocean. The result was the greatest disaster in the City's 75 year history.

Nine breaches or overspills of these flood control channels occurred sending water spewing down City streets, flooding residential and commercial areas of the City. Within minutes, the water level rose to waist deep in some homes. Citywide, 4,200 people were made homeless by being evacuated or not being able to reach their homes because of flood waters. 780 homes were flooded and $15 million damage was done.

Since that storm, City and County officials have been developing action plans to minimize the effect of a reoccurrence of the March, 1983 storm. .early $10 million has been appropriated by the County for flood control improvements in Huntington Beach over the next two years. Major maintenance has been done to the channels and a $130,000 engineering study by a private contractor sponsored by the County of Orange is being completed at this time. This study is being coordinated with the Corps of Engineers in anticipation of their completion of the Interim III Report, Orange County Tributaries in 1984-85.

The problem of flood control in Huntington Beach alone is immense. Cost estimates of over $60 million to improve channels within the City are being made to protect our citizens from another major flood. In addition, over 2/3 of the City lies within the flood hazard zone for the Santa Ana River.

We look forward with anticipation to your Committee's recommendation that the Congress and the President of the United States approve an appropriation of $550,000 in FY 1984-85 for completion of the Corps of Engineers Interim Report III (of the Santa Ana River Basin and Orange County, California Project), Orange County Tributaries.

We are also concerned about the deficiencies in the Santa Ana River Main Stem Project. A Standard Project flood would be much more devasting than last year's local flooding. We urge you to approve an appropriation of $3.5 million to keep the Corps of Engineers on schedule for a 1988 completion of the Phase II, General Design Memorandum.

Thank you for the opportunity to appear and present this information to your honorable Committee.

STATEMENT OF CALIFORNIA STATE SENATOR RAY JOHNSON, CHAIRMAN, SENATE SELECT COMMITTEE ON THE AUBURN DAM PROJECT

The proposed federal budget for the 1985 fiscal year currently includes $3.5 million for the Auburn Folsom-South Project. However, in order for substantive work to be done, additional funding is necessary.

We respectfully support a total appropriation of $5.25 million for the Auburn Folsom-South Project. Five million dollars of this amount will allow the Bureau of Reclamation to proceed with engineering planning for the project's final design. That is an essential step before any definitive cost-sharing policy can be determined. The remaining $250,000 will finance review of the Folsom-South Canal, alignment locations, water contract negotiations and completion of other studies. The original 1965 authorization for the Auburn Dam project includes sufficient funds for a $5.25 million appropriation.

There is widespread support for the Auburn Dam project, including a favorable recommendation from the California Water Commission. Furthermore, the project's delays have made even more apparent the need for its myriad benefits.

Thank you for your thoughtful consideration of this request.

STATEMENT OF ROBERT F. BEACH, GENERAL MANAGER, SONOMA COUNTY (CALIF.) WATER AGENCY

Mr. Chairman and Members of the Subcommittee -- I am Robert F. Beach, General Manager of the Sonoma County Water Agency (State of California). With me today is Nick Esposti, Fourth District Supervisor of Sonoma County. We urge that the subcommittee support the request for $14.0 million included in President Reagan's proposed budget for the Warm Springs Dam - Lake Sonoma Project in Sonoma County, California.

For the past twenty-three years we have annually represented to you our support for the Warm Springs Dam Project. We have recounted floods and droughts and described the great benefits that will flow from the completion of this project. That day is now at hand. The U. S. Army Corps of Engineers plans to close the outlet works gates and begin deliberate impoundment of water this November. The work planned for next year consists primarily of remedial work made necessary by two successive years of unprecedented rainfall and measures necessary to accommodate public pressures for lake access.

We appreciate the support the Warm Springs Dam Project has received from this subcommittee over the years and look forward with great anticipation to the full realization of the flood control, water supply and recreational benefits of the project.

STATEMENT OF THE SANTA ANA WATERSHED PROJECT AUTHORITY

PROJECT SUMMARY
IMPORTED WATER CONVEYANCE SYSTEM

(Project Approved by The Secretary of Interior on October 3, 1983
for Loan under P.L. 84-984 Small Reclamation Projects Act)

LOCATION

The Santa Ana Watershed Project Authority (SAWPA) is located within the boundary of the Santa Ana River Watershed and includes portions of Orange County, Riverside County, San Bernardino County, and Los Angeles County, approximately 55 air miles east of the City of Los Angeles, California.

ORGANIZATION

SAWPA was legally organized in 1973 under the laws of the State of California. SAWPA was created under a joint powers agreement between Western Municipal Water District, Chino Basin Municipal Water District, San Bernardino Valley Municipal Water District, and Orange County Water District. SAWPA was created by these districts to act on their behalf in such matters as planning, constructing, operating and maintaining irrigation, water quality improvement, or other water projects financed privately or through loans or grants. The agency has authority to execute a contract with the United States for repayment of the loan, has the power of eminent domain, and has authority to raise funds through assessments to member agencies as necessary for repayment of the loan.

PROJECT DESCRIPTION

Western Municipal Water District in Riverside County, California, one of the four member agencies of SAWPA, currently relies on imported Colorado River Water supplied by the Metropolitan Water District of Southern California (MWD) as its sole source of supply. MWD currently has a contract entitlement of 2,011,500 acre feet per year of State Project Water and 1,212,000 acre feet per year of Colorado River Water. When the Central Arizona Project goes into operation in 1985, the Colorado River Water entitlement will be reduced to 550,000 acre feet per year, a reduction of 55 percent compared to the current entitlement.

The proposed project would protect the existing agricultural economy in this portion of Western Municipal Water District by providing conveyance facilities to transport State Project water from MWP's Box Springs Feeder to agricultural users in lieu of the diminished Colorado River water. The higher quality State Project water would provide additional benefit by decreasing the amount of applied water necessary to optimize crop yields.

PHYSICAL WORKS

The principal project features are shown on Figure 1 and include:

1. Gravity pipeline beginning at the upstream side of the Mills Filtration Plant and running westerly approximately 65,000 feet. This pipeline would start as a 36-inch diameter line with a capacity of 32.5 cfs.

2. Ten million gallon storage reservoir located near the westerly end of the gravity pipeline. This reservoir would provide storage equal to approximately one-half the ultimate maximum day demand for balancing diurnal flow variations and as protection against emergency outage of the Box Spring Feeder.

3. Pressure pipeline beginning at the downstream side of the Mills Filtration Plant and running southerly approximately 18,300 feet. This pipeline would start as a 36-inch diameter line with an ultimate capacity of 41.7 cfs. An additional 12.2 cfs will be transported by existing pipelines in the area. The pipeline would connect to an existing distribution system which currently conveys treated Colorado River water from a southerly supply point.

4. Pumping station expansion at the site of the Mills Filtration Plant, supplying water to the pressure pipeline. The added facilities would be capable of pumping 33.3 cfs at a total dynamic head of 170 to 220 feet, to increase total plant capacity to 53.9 cfs.

The estimated project schedule and schedule of expenditures are presented in Figure 2.

PROJECT COST SUMMARY

Total Project Cost		$ 18,728,000
Loan (30-year repayment)		$ 14,917,000
Local Contribution		$ 3,811,000
Rights-of-Way	($ 100,000)	
Loan Application	(175,000)	
CEQA-EIR	(25,000)	
Filing Fee	(1,000)	
Local Administration of Loan	(10,000)	
Proposed Pump Station	(1,226,000)	
Cash	(2,274,000)	

STATEMENT OF CONTRA COSTA COUNTY, CALIF., AND CONTRA COSTA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

SUMMARY

Project	Requested Amount	Remarks
Walnut Creek Basin Restudy	$200,000	Planning - Corps of Engineer's review of locally prepared project reports - California Water Commission #16.
Walnut Creek	$11,400,000	Construction - President's Budget Recommendation - California Water Commission #37
Wildcat-San Pablo	$1,000,000	Construction - President's Budget Recommendation - California Water Commission #38

Chairman Hatfield, Members of the Subcommittee:

On behalf of the people and the Board of Supervisors of Contra Costa County, California, I wish to thank you for your past support and appropriations for our flood control projects. These projects have been the foundation of our County's flood control improvement program, the benefits of which to our citizens, businesses and industries have been immense. It is in the hope of the con- tinuing success of this program that I offer the following testimony in support of the recommendations of the California Water Commission:

Walnut Creek Basin Restudy - Planning

An allocation of $200,000 will fund the Corps of Engineers to review project planning reports for creeks authorized for study in the Walnut Creek Basin. These reports are, and will be, prepared at local cost. They will explore the available alternatives for the improvement of creeks flowing into the system already built by the Corps of Engineers. The environmental impacts and the projects' acceptability to the communities will be addressed. No federal expenditures will be needed until the Corps receives the completed reports for review and evaluation.

Walnut Creek - Construction

An allocation of $11,400,000 will fund the completion of design and the first year construction costs of the San Ramon Creek Bypass project. San Ramon Creek discharges into the already improved portion of Walnut Creek. Storms of recent years have shown the tremendous value of the already constructed improvements. The extension of the project will benefit the central Walnut Creek area, its citizens and business community.

Wildcat - San Pablo Creeks

The allocation of $1,000,000 will allow the Corps of Engineers to complete the design, advertise the project, and commence its construction.

This is a critical part of our flood control efforts in Contra Costa County. The original project was approved by the United States House of Representatives and the United States Senate in June of 1976. As it turned out, the huge right-of-way requirements of the project made it unacceptable to the community, as well as unaffordable since the right-of-way costs are local expenses.

The new project, for which we seek your support, is a scaled-down alternative, providing the same flood protection but with lesser right-of-way requirements and without recreational amenities. It is supported by the local property owners who in 1982 formed an assessment district which will furnish the local share of project costs in combination with other funds already generated through past property taxes.

It should be noted that the project's financing and local acceptance have been based on the then standard cost sharing criteria between the Federal, State, and local agencies. Subsequent changes in the Administration's policies for increased cost sharing caused our Board of Supervisors to agree to contribute 35% of the total project costs as the local share in view of the overwhelming need for the project.

In view of your prior approval of a more expensive project and the Administration's current policy on financing and cost sharing, we request that you not only support the $1,000,000 appropriation but recommend that this project be approved on the basis of the original cost sharing principles which required the local agency to bear only the cost of right-of-way acquisition and relocations as part of the construction project.

We further request that you also recommend that the construction of this project be authorized for FY 1984-85.

STATEMENT OF CALIFORNIA STATE SENATOR JOHN GARAMENDI, SENATE MAJORITY LEADER

Although I will not be able to attend California's April 5 presentation to Congress in support of federal flood control and reclamation appropriations, I wish to state my strong support for the increased funding for recreational facilities at New Melones Reservoir requested by the County of San Joaquin and the San Joaquin County Flood Control and Water Conservation District.

The requested increase to $7,500,000 from the $4,500,000 recommended in the President's budget will provide for implementation of the full, authorized recreational facilities at the reservoir as well as for authorized improvement to spawning beds and recreational facilities in the lower river areas. This will meet the federal commitment made at the signing of the agreements for the construction of New Melones.

Failure to complete the facilities in a timely manner would not only pose a hardship on the many recreationists in the New Melones area, but would also call into question the good faith of the federal government in initiating long-term water resources development projects.

I therefore urge the House and Senate Subcommittees on Energy and Water Development to act favorably on this request and appropriate the full amount needed for completion of the New Melones Reservoir recreational facilities.

STATEMENT OF JERALD R. BUTCHERT, MANAGER, WESTLANDS WATER DISTRICT, CALIFORNIA

My name is Jerald R. Butchert. I appear before you today as Manager of the Westlands Water District which receives its surface water supply from the San Luis Unit of the Federal Central Valley Project.

The Administration's proposed construction program for San Luis Unit is $4,235,000, of which $897,000 represents a non-federal advance from the State of California. The proposed program would provide a continuation of funding for such important project features as completion of a contract for raising the San Luis Canal structures in subsidence areas, continuation of work on the very important San Luis Drain Discharge Study, completion of contracts for cathodic protection in both the San Luis Canal Relift Pumping Plants and the Westlands Distribution System, raising the turnout structures on the Canal, and replacing drainpipe in the Drainage Collector System.

All the funds requested by the Administration will, as noted, be advantageously utilized in carrying forth and completing urgent ongoing work on project features. I respectfully urge their funding as requested.

In addition, I would urge upon you augmentation of the budget proposal to the extent of $1,360,000 for data collection and design work on our incomplete distribution system. As of today, that system is approximately 80% complete. We plan to seek legislative authorization this year to support the funding needed to complete the distribution system in orderly fashion, and to clarify the legal status of the District's authorized service areas.

The $1,360,000 which I have requested above the budget estimate is urgently needed for the resumption of data collection and the resumption of preconstruction design work on the incomplete portions of the distribution system. A completed system will enable us to achieve optimal efficiency in the scheduling and delivery of project water to lands within our District.

SAN LUIS REY RIVER, CALIF.—OPPOSITION

STATEMENT OF ALEX DEUTSCH

Senator MATTINGLY. Senator Cranston has asked the committee if Mr. Alex Deutsch could come forward and testify. I would like to ask him to come forward now and be seated.

Mr. DODSON. May I leave these here?

Senator MATTINGLY. Are you finished, sir?

Mr. DODSON. Our list is finished.

Senator MATTINGLY. If you have something for the record, you can put it in. If you don't, we will have to be very brief because we have to recess here in about 2 or 3 minutes.

Mr. DEUTSCH. I will be very brief.

Thank you for letting me appear, Senator Mattingly.

The councilman from our city said that the property owners tried to work this out with us and did not succeed. If we look at the big picture, we will see a revetment and a levy are already built. We have over 16,000 feet of revetments already in construction. The councilman is seeking $5 million to start what is a $45 million project. The $5 million is only the first year's cost.

In 1960 and in 1962 the city built a 100-year flood control levy on both sides of the mouth of the river. It is still there for everybody to look at, except on one side it is hit because the people that built it with private funds built it inside of the land area and that soil there never washed away. The distance across there is 558 feet. The amount required for this particular river is only 400 feet.

My request is that this Appropriations Committee throw out the Oceanside request and let the private landowners provide the flood protection.

That is all the time I have. This is what I want to say. We are willing to spend our own money and not cost the Federal Government, the State, the county, or the city a dime.

For your information, we cleaned out the river and in the 1983 flood, which was disastrous in most parts of California, we didn't have 1 penny's worth of damage and the water flowed down through our levees as though nothing had happened, and nothing did happen anywhere where the Corps wants to build the San Luis Rey River project.

Thank you very much.

Senator MATTINGLY. I might add we will leave this record open for you to provide any other written material or documentation you may have.

Mr. DEUTSCH. Thank you.

Senator MATTINGLY. Then we will take those statements, plus the Corps of Engineers, and make a sound decision, informed judgment, which sometimes happens in the Senate and sometimes it does not.

Mr. DEUTSCH. The little picture I gave you means we have a permit application that has been in there for 10 months for 5,500 feet. That would seal 90 percent, at least, of any vulnerable area of the city of Oceanside and that can be built in 60 days to a 100-year flood standard.

Senator MATTINGLY. Thank you very much.

ADDITIONAL WRITTEN STATEMENTS SUBMITTED FOR THE RECORD

I am also informed that the chairman normally keeps the hearing record open for 10 days to 2 weeks to receive additional statements, if any, on activities related to this subcommittee.

So, if additional statements are submitted and received, they will be made part of the record at this point.

[The statements follow:]

STATEMENT OF FRANK F. DUQUETTE, CHAIRMAN, SOLAR THERMAL DIVISION, SOLAR ENERGY INDUSTRIES ASSOCIATION

> "No single prescription exists for a solution to the energy problem. Energy conservation is not enough. Petroleum is not enough. Coal is not enough. Nuclear energy is not enough. Solar energy and geothermal energy are not enough. New ideas and developments will not be enough by themselves. Only the proper combination of all of these will suffice."
>
> -- Energy From Heaven and Earth, 1979

1.0 FOREWORD

This presentation describes solar thermal systems that can provide significant displacement of our fossil fuel resources by supporting industrial energy needs. The technology offers potential for not only providing an environmentally clean energy source, but also stimulating industrial growth with the associated jobs, tax revenue and other benefits.

The discussion outlines past accomplishments of the government industry partnership in developing this technology and the need for a moderate level of continuing government support to achieve timely transfer to the private sector for a multiplicity of applications. Technology readiness and market acceptance, financial and technical barriers, potential oil displacement, other government financial support options and related benefits are also outlined.

The industry recommended fiscal year 1985 DOE R&D budget for solar thermal technology is $54.7 million. In relation to the Energy Department's 1985 requested total budget of $12.815 billion, the amount recommended for solar thermal technology development is a rather moderate 0.4% share.

We believe this funding level provides a reasonably balanced effort for the upcoming fiscal year which builds upon the Administration's program and provides additional emphasis on nearer term subsystem/component development and support for large scale experiments. Furthermore, it recognizes the need to reduce federal spending levels, with a minimum of out year carry-over and yet maintains the momentum of a viable technology in which a substantial investment by the Government has already been made.

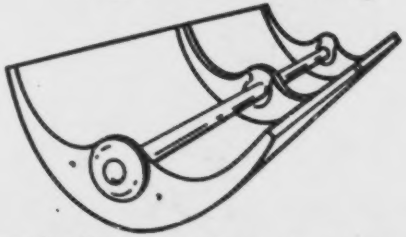
2.0 INTRODUCTION

The Solar Thermal Division of the Solar Energy Industries Association appreciates this opportunity to provide testimony on the FY 1985 budget pertaining to the solar thermal technologies. Once again, significant accomplishments and positive outlooks for the future have marked this past year as

SOLAR THERMAL SYSTEMS CAN CONTRIBUTE SIGNIFICANTLY TO US ENERGY REQUIREMENTS

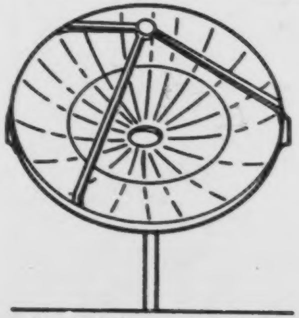
VGM297

Single-Axis Tracking



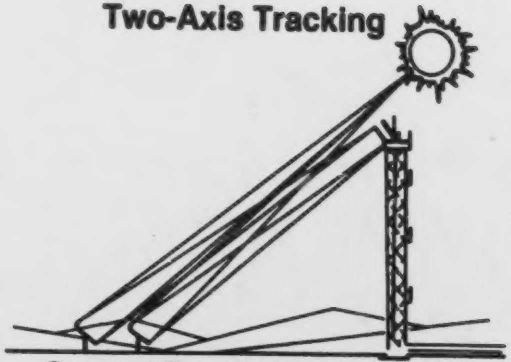
Parabolic Troughs, Line Focus

Two-Axis Tracking



Parabolic Dishes, Point Focus

Two-Axis Tracking



Central Receivers, Heliostats

a result of an ongoing government/industry partnership. As an industry association, we can now envision, with the recommended budget levels, market acceptance of the technology with development risks regarded as manageable by the private sector in the near term.

With regard to a related issue, we appreciate and support the Chairman's leadership in proposing an extension beyond 1985 of the federal energy tax credits which represents an appropriate role for the government to take in helping to create this emerging high technology industry.

2.1 SOLAR THERMAL DIVISION

The Solar Thermal Division, a division of the Solar Energy Industries Association, is an industrial organization fulfilling a vital role in the commercialization of solar thermal systems. Division member companies have consistently been at the forefront in advancing solar thermal technology through commitment of their own resources in close cooperation with the federally supported research and development programs in solar energy. Ranging in size from large, multinational, energy and aerospace corporations to small, innovative firms, our members are world leaders in solar thermal technology. This leadership is based on experience gained through the 1970's, beginning with the early efforts of the National Science Foundation Solar Program. Nearly ten years of accelerated effort have led to the development of advanced system designs that have exceeded almost all performance expectations. The transition from early engineering and test prototypes to full-scale operating systems for industrial and utility users is nearing reality.

This industry group, although not in agreement with the current administration's policies on renewable energy development, has responded to the policy shifts in the government's energy research and development program by implementing an orderly transition from system level engineering to a more research and applied development program. It should be kept in mind, however, the importance at this stage in this technology's development of the need to preserve the vast federal and corporate investment represented by existing test facilities. It is also important to continue and complete the component development program and last-step engineering phases that will help propel industry over the last major research and development hurdle that remains.

I know of no other renewable energy program that has met with more technical success, given the magnitude of the technical complexity. The government/industry partnership is working.

Members of the Solar Thermal Division believe that there are significant technical dividends that have resulted from this committee's support of solar thermal technologies. I also believe that the work accomplished to date and the prospects for the future justify the recommendations our industry is making for FY 1985 and beyond.

2.2 TECHNOLOGY SUMMARY

The major thrust of the government/industry partnership in the solar thermal program is to establish a capability in the private sector to deliver technically proven, cost-effective thermal systems for converting sunlight to low-, medium-, and high-temperature heat. Capabilities in these temperatures permit a range of potential applications which is unusually large and diverse. The heat can be used directly in industrial processes, or it can be converted to electricity or applied directly to endothermic chemical reactions to produce fuels.

The technical feasibility of concentrating solar thermal systems has been established by a combination of government and industry supported efforts during the past decade. The federal/industry investment alone has reached a level of over 500 million dollars. A direct result of this continued support is that the cost of solar thermal energy hardware has dropped significantly in the years since the inception of the program.

The commercial viability of solar thermal energy systems is tied to full scale system level product readiness and to its cost/value relationship with other energy supply options. Further reductions in systems cost will be necessary in order for solar thermal energy systems to compete strongly with fossil fuel based systems and other renewable energy options. Furthermore, actual operation of commercial scale systems must be conducted to ensure complete technology transfer to the private sector and to gain user industry acceptance.

Cost goals for economic competitiveness and user acceptance have been established for electricity generation and heat production as shown below for the year 1990. Cost goals on the order of 25-50 percent lower than 1990 levels will be achievable by 2010.

Application	1990 Goal (1983 $)
(1) Electricity	6-12¢kWh
(2) Heat	7-12¢MBtu

The following design concepts are being developed under this program:

- Central Receiver Systems
- Parabolic Trough Systems
- Parabolic Dish Systems

Hemispherical bowl technology has been phased out of the program and solar pond technology is already being utilized in the private sector.

The table on the following page shows the market areas that offer the greatest market potential for each design concept.

Parabolic dish prototype hardware RD&D is now being successfully conducted in the field. Further, recent experience with test facilities and operating system experiments has demonstrated levels of equipment reliability and durability for heliostat systems and parabolic troughs which are consistent with the market demands for specific applications. With the availability of government support for large scale system and subsystem experiments, mass production of collector prototypes already developed will reduce near term system costs to acceptable levels and promote the production levels needed to achieve stated cost goals in the 1990-2000 period.

2.3 MARKET ASSESSMENT

2.3.1 CENTRAL RECEIVER

In view of the administration's policy of supporting only high-risk long term research, the solar industry feels the urgent need to review the current state of development and commercial readiness of this technology. In particular, we want to highlight the need for continued government support of large scale experiments to achieve transfer to the private sector of the many applications and potential of central receiver technology to provide environmentally clean, affordable utility power in the late 1980's, 1990's and beyond. The current cost of conventional enrgy sources, the recent severe recession and levels of federal support for this technology which were lower than anticipated, have combined to necessitate this request for additional assistance.

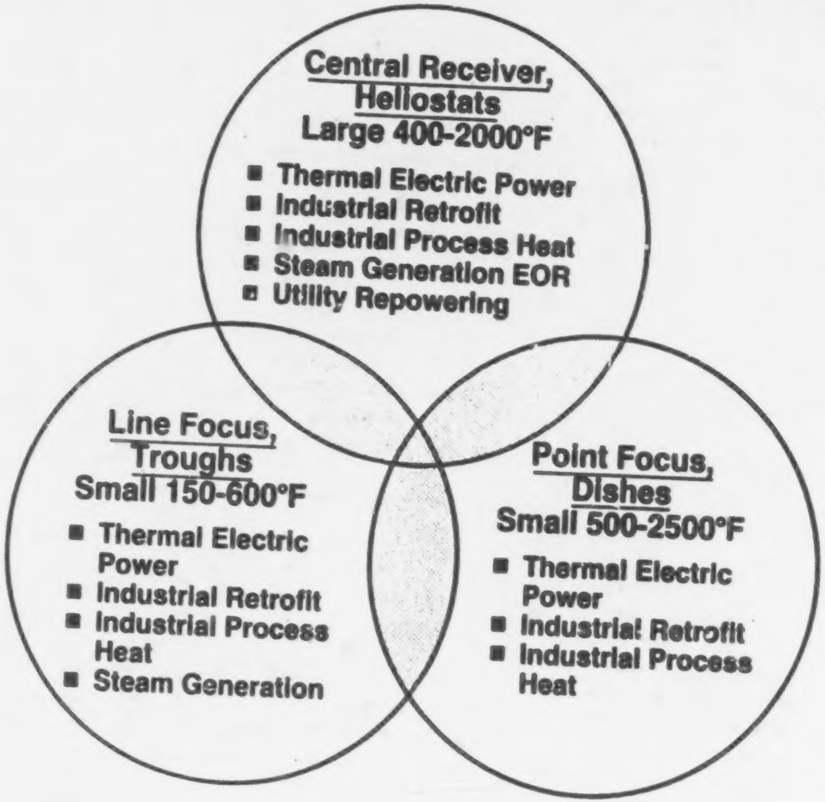
The solar thermal central receiver program, a program with 10 years momentum, is nearing the point of being passed from government to the private sector. This technology has not yet reached the stage in its development where it can be continued and completed by private capital alone. However, it is capable of being economically competitive and can help to stabilize and lower the cost of electricity for the ratepayer in the next decade. Utilities and power companies consider this potentially an important source of power generation for future generating capacity, but cannot complete development without shared federal assistance.

The research and development and proof of concept experiments conducted to date have proven this technology to be technically sound and environmentally safe. Further, central reservoirs are modular and can be installed in four to seven years, as opposed to the eight to 15 years required for fossil fuel and nuclear generating facilities. And, more importantly, the technology provides for national and regional energy security by displacing foreign oil supplies. For example, a 100 MWe central receiver solar electric plant (capital cost approximately $400 million) would displace approximately 800 thousand barrels of oil per year. Industry studies indicate a potential market for 50-80 solar electric plants of this type in the southwestern U.S. through the year 2010, so that a total displacement of more than 40 million barrels of oil per year is realistically achievable. Additional oil displacement could be achieved for solar industrial process heat applications, including steam for enhanced oil recovery.

2.3.2 UTILITY GENERATION

Generating capacity for the 1990 time frame and beyond is presently a part of utility planning activities. Several utilities are planning for central receiver power plants in their power generation forecasts for the following reasons:

PRIMARY SOLAR THERMAL TECHNOLOGIES AND APPLICATIONS



Central Receiver, Heliostats
Large 400-2000°F

- Thermal Electric Power
- Industrial Retrofit
- Industrial Process Heat
- Steam Generation EOR
- Utility Repowering

Line Focus, Troughs
Small 150-600°F

- Thermal Electric Power
- Industrial Retrofit
- Industrial Process Heat
- Steam Generation

Point Focus, Dishes
Small 500-2500°F

- Thermal Electric Power
- Industrial Retrofit
- Industrial Process Heat

MARKETS ADDRESSED BY STES	MARKET SECTORS	SPECIFIC APPLICATIONS	APPLICABLE COLLECTOR/ CONCENTRATOR TECHNOLOGY	APPLICABLE STES PROJECTS/ACTIVITIES
ELECTRIC POWER	Large Utilities	• Repowering Existing Fossil-Fueled Plants • New Capacity Additions • Base Load • Base Load (Site Specific)	} Central Receivers Solar Ponds	• Barstow 10MWe Pilot Plant • Utility Repowering – Carissa Plains – Saguaro • Solar 100 • Salton Sea
	Small Community Systems	• Remote, Island Powerplants • Military, MX-RES • Municipals, Rural Coops	} Parabolic Dishes } Bowls	• Small Community (EE-1) • Military Module (EE-2A)
INDUSTRIAL	Process Heat	• Large, 200-2000°+F • Small, 200-2000°+F • Small, 200-600°F • Low Temp. < 200°F, (Site Specific)	Central Receivers Parabolic Dishes Parabolic Troughs Solar Ponds	• Industrial Retrofit • Industrial Applications Experiments (EE-3) • SCSE
	Cogeneration/ Total Energy	• Small Industrial, 200-1000°F	Parabolic Dishes	• Shenandoah • Rancho Mirage
		• Large Industrial	Central Receivers	• DOE Industrial Retrofit Adv. Concepts
		• Small Industrial, Commercial, 200-600°F	Parabolic Troughs	• Mid-Temperature Solar Systems Test Facility (MSSTF)
	Production of Fuels and Chemicals	• Hydrogen Fuel TBD	Central Receivers Parabolic Dishes	• Explorator and Supporting Research (Seri/Sandia)

TABLE 1

Solar can be used for short-term intermediate capacity operation previously served by oil and gas, such as the repowering of existing oil and gas fired units (post 1986 operations) and stand-alone plants.

Smaller capacity additions on the order of 50-100 megawatts electric (MWe) are particularly suited to utility needs and avoid the problems of long licensing and permitting requirements and construction times associated with other types of projects, as well as significant reductions in capital funding requirements and the cost of money.

Integration and operation of central receiver power plants fit well into utility generation systems. The central receiver technology adapts reasonably well with the available thermal electric generating technology, with which utilities are familiar and have extensive operating experience.

These units, once the cost of construction is in place, offer protection against escalating fuel and transportation costs -- issues of great importance to stabilizing utility rates for the customers of electric utilities.

Solar thermal central receiver operation is virtually free of air and water pollution and solid waste disposal problems and costs.

3.0 SIGNIFICANT ACCOMPLISHMENTS

3.1 CENTRAL RECEIVER

Significant progress continues in the development of solar central receiver technology and application:

1) Solar One -- the 10 MWe plant for generating valuable performance and operating data since turbine roll in April 1982.

2) The ARCO Solar 1MW EOR System is consistently providing solar generated steam for heavy oil recovery near Taft, California.

3) An industry team was selected and is performing detailed design for a 30 MW grid repowering project with government cost sharing.

4) Southern California Edison has joined with industry to further develop a project structure for Solar 100, the first commercial sized central receiver power plant at 100 MWe.

SOLAR CENTRAL RECEIVER COMMERCIAL MARKET

TABLE #2

Sizeable Market Exists — 8.0 GW = 80 100 MW Plants

Capacity (GW)

EPRI Regional Areas	Existing Capacity	Projected Growth in Markets Solar Thermal Only			
		1984-91	1992-96	1997-2002	Growth Totals
Total ERCOT (Texas) Texas Utility Company	(31) 17	5.4	4.9	5.9	16.2
		0	0.8	1.5	2.3
Total WSCC (W-Tx, W-NM, Co, Wo, W-Mt, Id, Ut, Az, Ne, Ca, Or, Wa)	(43+)				
CA (SDG&E, PG&E, SCE)	35	4.6	4.0	6.0	14.6
		0.2	1.4	3.0	4.6
Others (APS, EPE, PNM, SRP, SPP)	8	1.5	1.0	1.4	3.9
		0	0.4	0.7	1.1
Totals	60	11.5	9.9	13.3	34.7
		0.2	2.6	5.2	8.0

3.1.1 Solar One

The 10 MW solar thermal central receiver pilot plant became operational in April 1982 and is currently the world's largest electric generating station powered by solar energy.

This plant is the result of a joint effort between Southern California Edison, the Los Angeles Department of Water and Power, the California Energy Commission, and the U.S. Department of Energy. The plant has operated at 10.4 MW net electrical output, which is slightly in excess of its rated output, and has produced over 6,833,400 kWh of net energy through mid-February 1984. Power output of 7.3 MWe from the heat storage system of Solar One has been achieved, an accomplishment which satisfies another design milestone for the plant. Heliostat availability has been demonstrated to a 99% level with nominal maintenance. Fatigue cracks were detected in the high temperature solar boiler tubes during the latter part of 1983. Structural modifications to the receiver to substantially reduce thermal stresses and increase tubing lifetime were completed in February 1984. Studies are continuing to define the means to further prolong receiver lifetime by revising heliostat aiming strategies which will reduce receiver peak temperatures and thermal gradients. The dual media thermal storage system has demonstrated that stable thermoclines can be maintained in an operational environment. Further, plant automation continues on schedule for demonstrating a clear day operating scenario. Also, valuable design verification data is being obtained from the nearly completed two-year test and evaluation program. And, finally, the power production phase to allow hands-on utility operation will be initiated later this year and continue for one to three years.

3.1.2 Repowering

Four preliminary design studies for solar central receiver power plants have been completed. These preliminary design contracts involved significant cost sharing between the industry participants and the DOE. Three of these design studies contemplated the construction of electric generation plants. These plants ranged in size from 30 to 66 MW and would use liquid sodium; molten salt or water as the heat transport fluid. The fourth design was a 31.8 MWe cogeneration project in Hawaii using water for heat transport.

The PG&E/Rockwell 30 MW sodium cooled receiver grid repowering design was selected by DOE for continuation into a cost-shared detailed design effort. This project anticipates an accelerated schedule which would allow a facility to be on line in mid-1986.

Arizona Public Service has proposed an RD&D approach for continuing development of a 66 MWe molten salt system for repowering the Saguro powerplant.

It should be noted that the above projects, including the Solar 100 initiative, are struggling to maintain favorable economics in the face of current lower fossil fuel prices and the potential loss of energy investment tax credits after 1985.

3.1.3 Solar 100

Southern California Edison has been a leading utility in expressing interest in renewable energy sources, with plans for 2190 MW by the early 1990's. Of this, 300 MW electric has been designated to come from solar energy. SCE has given considerable incentive to industry through its Solar 100 solicitation.

Four companies responded to the Edison request to participate in a conceptual engineering study for a 100 MWe commercial plant. Late last year, Edison selected the McDonnell Douglas design approach utilizing a two module molten salt system. This user/designer team is currently developing a project structure which is targeted to be operational in the 1988-1989 time period.

3.2 PARABOLIC DISH

3.2.1 The Parabolic Dish Stirling Cooperative Agreement completed its design and fabrication phases. It is presently operating daily at Rancho Mirage, California and has achieved electrical outputs of 25.2 KW for a gross conversion efficiency of sunlight to electricity of 31.6%. Several early commercial projects are being planned in addition to two small community projects being sponsored by DOE.

3.2.2 The Organic Rankine engine successfully completed 100 hours of simulated on-sun operations in the laboratory. The sub atmospheric brayton module achieved system checkout and integration, and the instrumentation and controls have been developed.

3.2.3 U.S./Sweden industrial firms have consummated a cooperative agreement for the development of commercial scale dish stirling concentrators (25 KWe).

3.3 PARABOLIC TROUGH

3.3.1 An American Solar King 60,00 ft^2 commercial IPH line focus system is in operation for Gould Corporation.

3.3.2 Heavy effort to develop private sector financing for commercial projects is continuing.

3.3.3 MISR systems in operation at Sandia-Albuquerque and SERI are providing valuable test data and operating experience.

3.3.4 Operating data from 12 IPH projects is being made available to industry.

4.0 STATE OF THE INDUSTRY

Growth in electricity demand has outpaced U.S. GNP growth over the past twenty years, and this trend is expected to continue in the decade ahead. A recent study of the U.S. electric industry by the DOE Office of Policy and Planning and Analysis predicts that electricity usage will account for an increasing share of total U.S. energy usage. Furthermore, because of restraints on utility investments by regulatory agencies and the problems experienced by the nuclear industry, electric generating plant additions planned and under construction may be inadequate to meet the projected need by 1990. Considering the lead times required for major plant construction, an even more serious shortfall (as much as 60 GW) could result if the economy expanded at a 1% higher than projected annual rate, and if some of the plants now in construction are not completed or are cancelled.

With a moderate amount of continuing Government support, solar thermal electric systems can provide a contribution to meeting the need for generating capacity during the latter half of the decade due to their shorter construction lead times, and can provide an attractive option to other generating alternatives, such as combustion turbines.

A just released Frost and Sullivan market study estimates that solar thermal electric systems will contribute 10 GW to the world power grid by 2010. Solar related equipment and service sales are also seen rising from the 1982 level of $488 million to $6 billion by 2010. To put this growth forecast in perspective, market penetration for this environmentally clean, renewable energy option moves from 20 MWe in 1982 to 10,000 MWe by the first decade of the next century.

It should be noted, however, that with reduced federal support for solar, along with a strong dollar that drives up the cost of U.S.-made goods abroad, the study sees Japan moving into the market.

"Very large individual plants are planned in both the USSR and India," and the study predicts that "as Japan and the Far East begin to recognize the importance of solar electric generation, we will see dramatic changes" in their level of investment.

A recent market penetration study conducted by one of our industrial member firms forecasts a potential of as many as 80-100 MWe solar central receiver plants fulfilling utility power intermediate load needs in the southwestern U.S. by 2002. Refer to table in Figure 1.

4.1 BARRIERS TO COMMERCIALIZATION

A number of issues must be resolved to clear the hurdle for commercial scale hardware project experiments leading to market acceptance:

> Financing: Project financing is not available for large new technology plants. Further, the high initial cost compared to revenues available at current electrical energy price precludes returns on investment required in the marketplace. Private sector investors are concerned about the availability of the 15% investment tax credit extension to 1992, and possible enhancement.
>
> Risks: Neither industry, utilities nor ratepayers are able to assume a disproportionate amount of the financial risk for first large scale experiments. Government support in the form of loan guarantee or energy price guarantee and technology budget outlay is required.

Regulation: Federal law exempts third parties from utility regulation for solar plants less than 30 MW. Larger plants are subject to utility regulation unless exemptions can be obtained for accounting, tax implications, and other burdens of utility regulation which are difficult for third party investors.

Technical: Some residual component and subsystem technology verification remains to be accomplished by the government's research and development program.

Energy Cost: Electrical energy prices today are depressed by current low oil and natural gas prices. This creates an imbalance between plant value and cost at this time.

4.2 SUMMARY OF SEIA/INDUSTRY STUDIES AND REPORTS

During 1983, the SEIA completed several studies on the current status of the solar thermal industry. They are:

An Assessment of the Impact on the Solar Central Receiver Industry if Federal Energy Investment Tax Credits Are Not Extended in 1983.

The Availability of Industrial Capacity to Produce Solar Thermal Energy Systems.

Avoided Cost Standards and Practices Under The Public Utility Regulatory Policies Act.

Assessment of Failure to Pass a Tax Credit Extension

Review of the status of central receiver technology revealed the initial dependence of commercialization this technology has on extensions of the business energy investment credit. In 1983, four preliminary designs for repowering plants were completed, and a team selected to proceed with a final design of a 30 MW plant. Two other initiatives continue to be active, a 100 MW plant proposed to Southern California Edison Company, and a 60 MW plant proposed by the Arizona Public Service Company.

Commercial introduction of this technology requires successful operation of a plant larger than the Solar One experiment. Change in the basic strategy of the federal R&D program has placed reliance on the private sector for funding construction and operation of such a plant. To date, no third-party group has been assembled to maintain a central receiver project. With expiration of the credits now 22 months hence, construction lead times of three to four years, and the need to place key component orders in mid-1984 for any plant to begin construction in the next 12 months no project will likely go forward without extension of the tax credits before the summer 1984. Should Congress fail to extend the credits, the SEIA assessment indicated the following could occur:

Failure to pass the credits extension legislation in 1983 signals a major defeat for the several projects still trying to arrange finance and get construction started.

The investment community loses interest in central receiver projects because planning cannot be initiated or sustained with the high degree of uncertainty about financing.

The solar companies retrench, halt their own market development expenditure, but continue to bid R&D contracts as they become available. The companies begin to pay more attention to longer-range applications, such as fuels and chemicals. Some may consider trying to develop small industrial process heat systems.

Near-term commercialization ceases because the interested utility companies abandon central receiver technology. They see industry halting commercialization activity, and because their planning horizon has already stretched out to 1995, they give it up.

The abandonment of near-term commercialization by industry reduces industry pressure on Congress and the Department of Energy to maintain the present levels of appropriations for solar thermal R&D. Nonetheless, industry may besiege Congress with a plan for a fully government-supported commercial demonstration plant, contending higher petroleum prices will so raise avoided costs in the 1990's that utilities will renew their interest in central receiver technology.

Base technology for Solar One, the Molten Salt Electric Experiment and Repowering is eliminated from the R&D program, and central receiver technology.

This assessment was prepared with the cooperation of several companies involved in central receiver technology. It does not represent a formal Solar Thermal Energy Division statement.

Industrial Capacity to Produce Solar Thermal Energy Systems

SEIA reviewed forecasts of power plant construction through the 1980's and the historical accuracy of such forecasts from 1978 to 1982. Capacity utilization of equipment manufacturers for fossil and nuclear power plants and of aerospace companies was analyzed. Because they account for approximately forty percent of central receiver plant capital cost, industry approaches to mass producing heliostats were also examined.

This survey of conditions in the industry which is capable of delivering central receiver technology and in the power market revealed two important findings. First, projections of utility plant capacity additions have usually overstated actual construction, and, if trends in the recent past continue, very little new business for the power equipment industry will be forthcoming this decade. Consequently, the power generation equipment industry is suffering a severe under-utilization of its capacity. It is capable, with a minimum of new investment, of meeting any expected demand in the 1980's for solar central receiver plants. If conventional plant manufacturers decommission capacity, but a market develops in five to seven years based on replacement of aging power plants, solar thermal plant constructors may find they have to compete for capacity to produce their systems.

The second finding concerns production of heliostats. A survey of potential suppliers of heliostats revealed two paths to creation of mass production capability. Aerospace firms which are involved in central receiver development, and despite their own excess capacity, expect to invest in new facilities for large volume production. Another major participant has identified a second approach, however, which would minimize investment in production facilities and rely on existing capacity that is producing on a regular basis most of the parts needed to build a heliostat. It is unclear which of these paths will be the foundation of the commercial introduction of central receiver technology.

Avoided Cost Standard and Practices Under The Public Utility Regulatory Policies Act

The Solar Energy Industries Association examined the relevance of PURPA legislation, specifically Sections 210 and 201, to solar thermal project developers. The study provides an understanding of the avoided cost standard used by electric utilities to calculate the price paid to small power producers, and of the interconnection and qualifying requirements for such producers. SEIA also surveyed important actions state utility commissions and utilities have taken and the limited experience to date of solar thermal projects proposed under PURPA guidelines.

The court challenges to Federal Energy Regulatory Commission rules implementing PURPA provisions favoring independent power producers have been decided in FERC's favor. Most states have proceeded to adopt the FERC rule and established rates which meet the definition of full avoided costs. Compliance with PURPA has therefore been almost universal; but, in practice, the result has been a great variety of rate-setting methods. Thus, after four years, avoided cost is still an evolving issue.

Opportunities exist to improve the avoided cost picture for solar thermal projects, and would concentrate on:

Identification of the most favorable marginal plants

Avoiding use of historical averages

Inclusion of O&M and line loss factors in avoided cost calculations

Another area of dispute concerns capacity credits, which can amount to as much as 10 percent of full avoided costs. Capacity credits have so far proven difficult to calculate and are controversial. One problem is in predicting accurately the future generation mix of a utility's baseload facilities and its true avoided capacity costs. Few widely accepted methods exist, and room for interpretation is great.

Support for capacity credits for solar thermal systems should be readily forthcoming given performance to date of the 10 megawatt pilot plant (Solar One) at Barstow, California.

Examination of issues surrounding establishment of power purchase rates for independent power producers revealed that alternative approaches may be required. A fundamental question unresolved is who would help pay for development of new power generation technologies.

Utilities have petitioned for rates higher than avoided costs, and others contend that avoided cost formulae do not reflect many hidden costs associated with proceeding with conventional energy technology. Solar industry representatives have suggested that the energy cost of new generation projects, typically twice any avoided cost figure calculated currently, be defined as "avoided cost."

In summary, Federal Energy Regulatory Commission rules of PURPA avoided cost stipulations have been upheld, and PURPA Sections 201 and 210 are working to increase independent power production. Solar thermal technology projects are few, and adjustments to current procedures, calculation methodologies and rules interpretations may be necessary for large-scale solar thermal projects to make headway under PURPA provisions. It is clear that any solar thermal initiatives will be considered on a case-by-case basis by the regulators for the foreseeable future.

5.0 PROPOSED FY 1985 BUDGET

The Administration's FY 1985 budget request for the Solar Thermal Technologies is $37.5 million. This figure represents only something over one-half of our industry request.

The STEA considers the Administration request inadequate in light of the significant accomplishments and the remaining tasks. Included herein is a comprehensive alternative budget that totals $54.7 million. In the next section, we have spelled out our rationale for each line item and we feel that our submission represents a realistic and balanced approach to the development of solar thermal energy. The difference in the two budget requests represents the difference between having a viable, near term, job-producing industry, or a program resulting in longer delays and the potential of loss of significant industry involvement and support.

FINAL
2/24/84

SEIA SOLAR THERMAL DIVISION
FY 85 TECHNOLOGY BUDGET RECOMMENDATIONS

A. RESEARCH				13.9
1. EXPLORATORY				
a) Materials		3.3		
b) Innovative Concepts (PRDA - New & Follow-on)		1.0		
c) University Thermal Research		1.7		
d) Photo/Thermal Chemical		.7		
2. SUPPORTING				
a) Innovative Collectors, Concentrators and Refractive Devices		2.0		
b) Parabolic Trough Materials		0.5		
c) Parabolic Dish Materials, Controls & Thermal Storage		1.8		
d) Fuels & Chemicals (Hi-Temp Receiver/Reactor 1500°F-2500°F)		2.9		
B. CENTRAL RECEIVER RESEARCH & DEVELOPMENT				26.7
1. SUBSYSTEM/COMPONENT DEVELOPMENT			8.9	
a) CRTF Operations		1.4		
b) Subsystem Component Development -2nd Generation Receiver -Steam Generator, Storage		6.5		
c) Automated, Unattended Control System		1.0		
2. EXPERIMENTS			17.8	
a) Solar I				
-O&M		3.6		
-Performance Analysis & Test		1.0		
b) MSEE Operations & Test		2.4		
c) Large Scale Experiments -Direct support of one or more industrial team projects		10.3		
d) Small, Remote System Concepts		0.5		
C. DISTRIBUTED COLLECTOR TECHNOLOGY DEVELOPMENT				12.4
1. PARABOLIC DISH			11.9	
a) Test Facilities		1.5		
b) Thermal Transport		1.7		
c) Dish Electric		4.2		
-Brayton	2.5			
-Free Piston Stirling	1.7			
d) Adv. Concentrator		3.0		
e) Small Community System Experiment		1.0		
f) Capital Equipment		0.5		
2. PARABOLIC TROUGH - Operation, Refurbishment & Performance Data			0.5	
D. PLANNING AND PROGRAM SUPPORT				1.7
TOTAL				54.7

SEIA SOLAR THERMAL DIVISION
FY 85 TECHNOLOGY BUDGET RECOMMENDATIONS

A. RESEARCH

1. EXPLORATORY

a. Materials. An amount of $3.3 million is recommended for work in the following areas: Reflective surfaces (glass, plastic, acrylic coatings, etc.); anti-reflective, selective and absorptive coatings; seals; improved glass (thin, strength); high temperature, flexible hoses; structural materials (weight, price, strength, cycle life); ceramics; transparent windows; cavity insulation and shielding at operating temperatures; insulation for high-flux systems (1.5 MW/m^2 to 2.0 MW/m^2); corrosion-resistant properties of low-cost materials for nitrate salts; and measurements of physical properties of nitrate salts.

b. Innovative Concepts (PRDA - New and Follow-On). An amount of $0.5 million is recommended for solicited innovative research. It is recommended that evaluation of the PRDA responses be carried out or monitored by a peer review committee incorporating a majority of university researchers. This will both assure the high quality of the research undertaken and assure that the research is outside the area of immediate problem solving. It is also recommended that $0.5 million be made available for two to three follow-on experiments (Phase II) selected from the present innovative research contracts.

c. University Thermal Research. The expansion of the solar thermal technology base for cost effective approaches to future commercial market applications requires continuity of research direction and funding. In the view of industry, the research program should be addressing the needs related to performance improvement, cost reduction of critical subsystems (collectors, receivers, etc.) and expansion into new applications such as fuels and chemicals. The research should emphasize the removal of technical barriers prior to engineering development by industry.

Research work carried out by U.S. universities continues to be useful in identifying promising concepts and processes in solar thermal technology and transitioning technology to private industry. It is recommended to continue funding for the ongoing Solar Thermal Advanced Research Activity Center (STARC) at the University of Houston (UH) at $0.7 million and at GIT at $1.0 million. The GIT funding level recognizes the presence of the Advanced Components Test Facility (ACTF) at GIT and includes $0.25 million to maintain it in an operational status.

d. Photo/Thermal Chemical. Seven hundred thousand dollars is recommended for basic research of photochemical effects of high flux and high temperatures for various atmospheres. The work is needed to better understand degradation of receiver surface materials, both for external and direct flux particle receivers.

2. SUPPORTING

a. Innovative Collectors, Concentrators & Refractive Devices. Reflector materials development for low cost, lightweight concentrators. The program includes research and small scale experiments to develop silvered polymeric reflectors having 92% reflectance, 15 year life, and resistance to ultraviolet and environmental attack. The program will also include research to establish the feasibility of polymer materials for structural membranes with an emphasis on creep fatigue, durability under wind and hail impact, ease of handling and attachment, optical quality, stability and weatherability ($1,950,000). Refractive devices, i.e., linear fresnel lens concentrator, for IPH applications up to 500° F should be included.

b. Parabolic Trough Materials. A funding level of $0.5 million is provided to support continuing generic R&D for components and materials which will provide higher performance, lower capital costs and longer lifetime for trough hardware. A priority need is for lower cost, 20-year life, reflective services with greater than 96% reflectivity, and high production volume cost of $\$1.50/ft^2$ or better. Other important areas include high temperature heat transfer fluids; higher emissivity, long life, absorptive coatings for receivers; long life, stable evacuated tube receivers.

c. Parabolic Dish Materials, Controls and Thermal Storage. The materials and component research program shall support the parabolic dish technology by providing $1.8 million towards heat pipe/thermal storage receivers, application of fiber optics for dish controls and reflective surface material development for compound curvature applications. Large fresnel lens point focus acrylic material coupled with rigid supporting structure should be investigated.

d. Fuels and Chemicals. Thermo chemical and high temperature receiver/reactor (1500° F-2500° F) concepts definition and development. Although the solar thermal industry recommends that R&D in the area of the application of solar thermal processes to the production of fuels and chemicals be continued, we do not feel that it should have a high priority since it cannot have a near-term impact on stabilization of energy prices or on energy independence. We do feel, however, that a $2.9 million effort is justified, provided it is expended on research of processes and systems that can potentially apply to a broad range of current industrial processes and with increased chemical industry participation. Direct flux particle receivers need basic/exploratory research as well as development. Even though, for example, a long-term goal of producing hydrogen by means of thermochemical processes appears to be promising, that goal should be reached via analyses, research, and development which can be of use to the U.S. industry in the near term. The industry feels that funding for research and development in the field of fuels and chemicals should be kept at a relatively low level until the nearer-term technology development applying to the parabolic dish and central receivers is at a stage at which it can and will be picked up by the private sector for commercialization. Out-year budgets for fuels and chemicals are, therefore, recommended for increases consistent with the potential impact they can have on the longer term energy supply for the U.S.

B. CENTRAL RECEIVER RESEARCH & DEVELOPMENT

1. SUBSYSTEM/COMPONENT DEVELOPMENT

a. CRTF Operations. The CRTF continues to be a valuable research tool for central receiver development. The ability to transfer the solar central receiver technology to the private sector at any time will depend to some extent on the degree to which the technical feasibility of the process or the performance of a component has been verified at a real solar source. In addition, private industry anticipates a need to have facilities available (much like those available for high energy physics or nuclear research) at which testing can be conducted on hardware designed and fabricated by private industry. Any given private organization could not afford or justify keeping a facility active on the basis of the infrequent times at which its own needs must be met. Industry feels, therefore, that this need should be logically and properly met by federal involvement. A budget of $4.1 million is recommended for FY 1985, and similar budgets are required for out-years for the facility.

b. Subsystem/Component Development. One of the major barriers that impedes the ability of industry to pick up the central receiver technology is the high cost and high risk associated with the development of certain key central receiver components. Principally, these components are the receiver, the steam generator, and storage. In order to reduce the perceived risk of these components to the point at which the private sector can pick them up and complete the development for commercialization, the industry recommends a base technology development effort which includes the receiver as well as the other two key components, for both molten salt and sodium systems.

Recommendations for molten salt work are as follows:

- Extended Receiver Test, CRTF: $0.5 million. Twelve month extended lifetime and performance testing of Category B 5 MW model molten salt receiver.

- Continued development of operating strategies including overnight drain-down versus warm standy-by, transient responses, and reduction of thermal cycling effects. Extended testing and experience with heat tracing and salt line instrumentation.

- Extended Pump and Valve Test, CRTF: $0.8 million. Twelve month extended full-scale molten salt pump and valve testing for performance and reliability. Data to be collected under both hot (1050° F) and cold (530° F) conditions. If only the hot (or cold) loop tests are conducted under Category B, then the corresponding cold (or hot) loop tests must be conducted here. Extended testing and experience with heat tracing and salt line instrumentation.

- Storage Tank Thermal Cycling: $1.1 million. New experiments with molten salt storage tanks to test a scale version of the preferred full-scale design for resistance to thermal cycling and for leak detection methods.

- Physical Property Test, Cover Gas and Metals Corrosion: $0.3 million. Extended monitoring of molten salt properties, including the addition of additives for lowering the melting point and raising the operating temperatures, the evaluation of several cover gases in storage tanks and continued and expanded operation of the molten salt corrosion test loops at CRTF. Dismantling and inspection of MSEE molten salt steam generator for abnormal corrosion effects.

Recommendations for Liquid Sodium are as follows:

- Reheater, $1.0 million. While sodium-to-water steam generators have been developed for the evaporator and superheater mode of operation, operation in the reheater mode is sufficiently different so that development and testing is required. There are no U.S. manufacturers of steam generators which operate in this mode. The use of reheat will allow a significant improvement in turbine efficiency for solar systems and will allow them to be more competitive with fossil-fired plants. This development activity would include the design and analysis of plant sized reheater units for operation at 1100° F sodium temperature followed by the fabrication and test of a prototype test unit.

- 2nd Generation Receiver, $1.0 million. A second generation receiver is a necessary adjunct to the development of the air/rock storage concept, since this storage system must operate at slightly higher temperaturs (1100° F to 1200° F). Several materials would be evaluated for this application and a test unit designed and fabricated. The receiver would be tested at flux levels up to 1.500 MW/M^2, with sodium outlet temperatures not to exceed 1200° F.

- Air/Rock Storage, $1.0 million. The economic viability of an all-liquid type central receiver concept as an energy option will be greatly enhanced by the development of the air/rock storage concept which shows the potential for economical quasi-baseload type of operation. The technical performance and operating characteristics of the air/rock system needs to be verified before the private sector can take over the engineering development and application. The operating and economic benefits associated with a long duration storage system with up to 12 hours of full power operating capacity would be analyzed. A system designed to operate with 1100° F air would be tested to determine storage charge and discharge capability, durability of the rocks, temperature distribution, and pressure drop.

c. In order to reduce operating costs of both small and large scale plants, commercial development and testing of automated, unattended control systems is required. It is envisioned that this effort would culminate in test loops either at Solar One or CRTF. A $1.0 million funding level is recommended for FY '85.

2. EXPERIMENTS

a. Solar One Operations, Maintenance and Analysis. This item provides $4.6 million for the continued operation of Solar One test and evaluation activities, and initiating the utility power production phase.

(1) An analysis of test data to compare predicted and actual plant parameters to verify design performance. Developing operating strategies to increase plant output and improved economics.

(2) Collector (heliostat) tests and evaluations to derive beam pointing, beam quality,, and reflectivity data. Heliostat cleaning requirements will be established.

(3) Plant maintenance evaluations will be conducted, including the analysis of the reliability of equipment, the identification of preventive maintenance needs, and receiver repair activity.

(4) "Lessons learned" documentation for design, construction, operational phases and technology transfer.

b. MSEE Operations & Test. Molten Salt Electric Experiment Operations & Test: $2.4 million. The Molten Salt Electric Experiment, made operational in 1984, requires continued support in the advanced testing phase. Design and construction (Phase 1) will be completed in 1984. Operational testing and training (Phase II) is planned for completion in FY 1984. A Phase III program -- advanced testing -- is recommended for FY 1985. This testing will be conducted by teams of user and designer/manufacturer personnel and will, upon completion, provide a greater degree of understanding of systems/hardware uncertainties to users. This program provides for both technology transfer and for development of a broader base of experimental experience from which future molten salt technology development requirements can be defined.

c. Large Scale Experiments. This item provides $10.3 million in FY 1985 for direct support of one or more industrial team projects. This will provide a relatively low level of government cost sharing for a portion of the R&D effort required and will allow industry to meet otherwise unachievable project financing hurdles and to proceed with projects currently on the board. Follow-on funding at a level of $15 million per year for FY 1986 and FY 1987 will complete this requirement and bring thermal control receiver technology into private sector acceptance.

d. Small, Remote Systems Concepts. International applications of solar thermal central receiver technology in remote locations is being explored by many governments including Canada, France and Switzerland. The smaller/remote locations are potentially suitable for this technology since current electric generation costs are on the order of 16-20 cents/KWh. An amount of $0.5 million is recommended for cooperative, exploratory studies of small system and component applications for remote deployment.

C. DISTRIBUTED COLLECTOR TECHNOLOGY DEVELOPMENT

1. PARABOLIC DISH

The parabolic dish technology development program of $11.9 million shall continue research in the electric and thermal applications. Dish electric module development shall consist of $2.5 million for the brayton module developments and $1.7 million for the terrestrial solar application of the NASA sponsored 25 KW free piston Stirling engine. The shift of lead center responsibilities shall provide a shift to thermal applications of parabolic dishes and consequently fund $1.2 million for such activities with $1.5 million for operations of the Distributed Receiver Test Facility. The Innovative Concentrator Program started in FY 1984 shall continue at $3.0 million. The Small Community Solar Experiments shall be supported with a total of $1.0 million reserved strictly for operations and maintenance of these systems for a sufficient period of time to fully gain the data and experience associated with this project(s). In the same context, $0.5 million shall be provided to continue data collection at selected representative parabolic trough facilities. As presented in the President's budget, $0.5 million shall be provided for capital equipment.

2. PARABOLIC TROUGH - Components, Materials and Performance. A funding level of $0.5 million is recommended for completion of the operating phase of existing IPH and MISR projects, to obtain data from trough systems which remain operational and to support refurbishment and/or retrofit of specific systems which represent commercial prototypes. Until first-of-a-kind commercial projects are in operation, existing DOE funded systems are the only ones available for use as industrial marketing tools. For this reason, their efficient performance and continuing operation is mandatory.

D. PLANNING AND PROGRAM SUPPORT

1. Approximately $1.7 million is recommended by the industry for allocation in the area of planning and coordination of solar thermal activities. These activities should be directed toward all technologies, with emphasis on short term and long term planning, analysis, assessment of technical and economic issues, and program evaluation and documentation to ensure a balanced and effectively prioritized program. These activities are conducted by a core staff comprised of personnel from several DOE labs with support from other subcontracted organizations uncoupled from any one solar technology to obtain unbiased results. The industry opposes activities dealing with cost goals, since such activities tend to have a negative effect on private-sector activities.

The planning and documentation effort resulting in preparation of the of Annual Operating Plans, Multiyear Program Plan, Annual Evaluation Report, etc. are important for the management and evaluation of the current program, as well as planning for future research and development.

This activity is expected to continue in out-years at approximately this level.

E. CONCLUSION

We think that this budget recommendation at $54.7 million outlines a reasonably balanced structure for FY 1985 which builds upon the Administration's program and provides additional emphasis on nearer term subsystem/component development and support for large scale experiments. Furthermore, it recognizes the need to reduce federal budget levels, with a minimum of out year carry-over and yet maintains the momentum of a viable technology in which a substantial investment by the Government has already been made.

We respectfully request the subcommittee's continuing support for solar thermal technology development and the Government/industry partnership.

LETTER FROM R.E. DODSON, CHAIRPERSON, DEPARTMENT OF WATER RESOURCES, CALIFORNIA WATER COMMISSION

May 10, 1984

Honorable Mark Hatfield
Chairperson
Senate Committee on Appropriations
Subcommittee on Energy and Water Development
Dirksen Office Building, Room 142
Washington, D.C. 20510

Attention: Stephen Crow, Staff Assistant

At our meeting on May 4, 1984, James Laughlin, General Manager, Elsinore Valley Municipal Water District, Riverside County, California, briefed the Commission on the District's P.L. 984 loan application. The purposes of the project are to (a) maintain a minimum water elevation in Lake Elsinore during dry years by reducing evaporation losses and introducing ground water, and (b) maintain a maximum water elevation in the lake during wet years through the use of an overflow channel. A copy of the project summary submitted to the Commission by the District is attached. The Commission voted to support an appropriation of $500,000 in F.Y. 1984-85.

We recognize the lateness of the hour in submitting this recommendation for F.Y. 1984-85 to you, but hope that you can consider favorably the District's request when you approve funding for water and flood control projects for F.Y. 1984-85.

Sincerely,

R.E. Dodson

R. E. Dodson
Chairperson

PROJECT SUMMARY
LAKE ELSINORE MANAGEMENT PROJECT

(Project submitted to the Department of Interior, Bureau of Reclamation for Loan under P.L. 84-984 Small Reclamation Projects Act).

LOCATION

The Elsinore Valley Municipal Water District (EVMWD) is located within the Elsinore Valley in southwestern Riverside County approximately 60 miles southeast of the City of Los Angeles, California.

ORGANIZATION

EVMWD was legally organized in 1950 under provisions of the California Municipal Water District Act of 1911. The purposes of the District are to finance, construct, operate and maintain a water system within District boundaries. The District has authority to execute a contract with the United States for repayment of the loan, has the power of eminent domain and to levy ad valorem taxes. The District is also legally empowered to construct, operate, and maintain public recreational facilities; to acquire, construct, operate and maintain sewage, waste, and storm water disposal facilities; and to acquire, construct, operate and maintain fire protection facilities.

PROJECT DESCRIPTION

Lake Elsinore is a natural sink at the terminus of the San Jacinto River. The lake has historically fluctuated from being completely dry during drought years to periods of severe flooding during wet years. The economy of the Elsinore Valley has risen and fallen with this lake fluctuation. In 1980, the lake rose to an elevation of 1265.7 resulting in flood damages in excess of $30 million. Numerous attempts at developing a means of controlling the lake and enabling a healthy economy to be established have been attempted since the turn of the century but to no avail. The Corps of Engineers is in the process of completing a $750,000 study in an attempt to solve the flood problem but has been unable to justify a project under their guidelines. Following the 1980 flood, FEMA and numerous other federal agencies were involved in trying to develop a recovery program and ways of preventing future flood damages but nothing concrete was developed. Implementation of this project solve this long standing problem and will result in a controlled lake thereby allowing the economy to grow.

The purpose of the project is to maintain a minimum water elevation in the lake during dry years by reducing evaporation losses and introducing groundwater; the purpose of the project is also to maintain a maximum water elevation in the lake during wet years through the use of an evacuation channel. By managing the lake within optimal water surface elevations, benefits will be realized by agricultural irrigators, fish and wildlife, recreational users, and property owners who will benefit from the project. The impact of the project will have on lake elevation is indicated on Figure 1 which shows historical lake levels and what they would have been had the project been in place.

PHYSICAL WORKS

The principal project features are shown on Figure 2 and include:

Main levee, approximately 11,000 feet long by 33 feet high with a top elevation of 1,265, necessary to separate Lake Elsinore from the southeasterly flood plain. The levee will reduce the surface area of the lake to approximately 3,000 acres, thereby reducing evaporation losses, while also providing storage.

The lands behind the levee will become available for use by agricultural irrigators and for recreational uses consistent with the land's continued designation as a flood plain (e.g. golf course).

Inlet channel modifications, twin parallel levees with top elevation 1265 which will convey 100 year storm runoff from the San Jacinto River to the contained Lake Elsinore.

Outlet channel modifications, deepening Lake Elsinore's natural outlet to a sill elevation of 1252, allowing outflow from the lake to occur during major storms.

Dredging, to elevation 1232 to provide a uniform, minimum water depth in Lake Elsinore.

Outlet pump station, located at the mouth of the lake's outlet channel. The pump station will lift a maximum 14 cfs from the lake where it will flow downstream for ultimate use by agricultural irrigators.

Levee drainage pump station, capable of pumping a maximum 90 cfs, to lift local storm runoff from behind the main levee into Lake Elsinore.

Water supply wells, rehabilitate 3 existing and drill 3 new wells to replenish Lake Elsinore in dry years and to supply water for agricultural irrigation.

Lakeshore Drive Park, a new recreational day use facility located on the northeast shore of Lake Elsinore, including picnic area, beach, and marina.

Riverside Drive Campground, expansion of an existing campground and marina, located on the northwest shore of Lake Elsinore.

Distribution pump station and piping, to divert and convey water from the Temescal Wash to agricultural irrigators.

PROJECT COST SUMMARY

Total Project Cost		$39,791,000
Loan (32-year repayment)		$ 3,262,000
Grant		$22,738,000
Local Contribution		$13,791,000
Rights-of-Way	($2,700,000)	
Loan Application	(135,000)	
CEQA-EIR	(25,000)	
Filing Fee	(1,000)	
Local Administration	(10,000)	
Cash	(10,920,000)	

STATEMENT OF GERALD GORDON, PRESIDENT, UTAH WILDLIFE FEDERATION

The Central Utah Project (CUP) is being reviewed by your committee for funding in the 1985 budget year. This project is perennially portrayed as the solution to Central Utah's water problems. It includes delivery of water to the Salt Lake Metropolitan area to serve the needs of an expanding urban population, industrial users and agriculture users in the Central Utah area.

The CUP is an old project originally conceived to develop water in Eastern Utah and deliver it to the Central Utah area. To achieve this objective, water is gathered over an area of approximately 6,500 square miles. Some of the water is redistributed within the area to fulfill the existing water rights. The remainder is moved over a mountain range. Within this framework there is a great deal of opportunity for mischief or growth beyond the original intent of the project authorization.

The Utah Wildlife Federation submits that the CUP is a project out of control. It is operating beyond the original intent of the project and has exceeded the authority granted by the enabling laws and regulations. Costs have grown to the point of exceeding an economically feasible project. We cite the following as examples to support our allegation:

1. The funding ceiling for the M & I water portion of the project has been exceeded. In order to continue that portion of the project, the Board of Directors of the Central Utah Conservancy District has taken extraordinary action to revise the repayment contract. This action impacts advalorium taxes and was not submitted to the electorate for final approval. In our opinion, this action violates public law. Reference a recent Bureau of Reclamation Inspector General Report and the analysis of the project prepared and submitted separately by the National Wildlife Federation.

2. The current planning for agriculture water includes construction of a multimillion dollar system for delivery of approximately 40,000 acre feet of water into the Sevier River drainage and ultimately to the Lynndyl, Utah area. This water will be sold to any agriculturalist who owns a current water right. This action will allow purchase of water by the area water users who sold an equivalent amount of water to the Intermountain Power Project for an estimated $82 million. The estimated cost of the CUP water to these same people is approximately $4 million. This price will not defray the cost of the delivery system and will allow a windfall profit of approximately 2,000 percent.

3. Construction of a major power generator capability in Diamond Fork has become a major feature of the project. It is very attractive to the project because it can become a major source of revenue for partial recovery of project costs. Construction of this feature is not economically justifiable in the face of the current economics in the power industry. The IPP has already been reduced by 50 percent. The construction of the Deseret Power Plant in Eastern Utah by the Utah Power and Light Company is proceeding even though the market (synfuels) has disappeared.

These examples are merely the tip of the iceberg. Other problems are surfacing such as condemnation of previous water rights, acquisition of utility right of ways through incorporated city areas without complete city action approving the acquisition and expansion into such areas as sewage treatment and culinary water systems.

These examples are not direct wildlife issues. They are good government issues and are of concern to our membership as citizens of the state. The wildlife issues are as a result of the construction activities and the resultant destruction or alteration of major segments of wildlife habitat. A prime example is the diking of Utah Lake, thereby eliminating thousands of acres of wetlands.

The Utah Wildlife Federation opposes any funding for new construction within the CUP. We further oppose the authorization of engineering funds for the investigation and design of new features not already approved for construction. The Utah Wildlife Federation further requests that the action taken by Governor Matheson to establish a CUP review committee be expanded to become a joint congressional and state review to validate the individual features of the CUP. The review should include public meetings in Utah. These meetings should be in two parts. Part one will be a complete explanation of the CUP and all of its programmed features including validated cost estimates and comments by the conservancy district as to need. Part two would be public comment to the program.

The Utah Wildlife Federation appreciates the opportunity to be part of the review process. Our membership of over 2,000 people is vitally concerned with this issue and respectfully requests that our concerns be addressed in your deliberations.

STATEMENT OF JACK L. STONEHOCKER, DIRECTOR, COLORADO RIVER COMMISSION OF NEVADA

Mr. Chairman, members of the Committee, the Colorado River Commission of Nevada has statutory authority and contractual responsibility for administering the repayment contract for the first and second stages of the Robert B. Griffith Water Project (formerly the Southern Nevada Water Project). As the Director of the Commission, and in their behalf, I wish to extend our appreciation for the endorsement the House Committee on Appropriations has given to the development of this vitally needed water project authorized by Public Law 89-292. Further, I take this opportunity to ask the Committee to support the appropriation in the amount of $500,000 to assure the completion of this endeavor. This amount is included in the Executive Budget under "Drainage and Minor Construction."

Completion of the second stage facilities will allow Nevada to receive the total 299,000 acre feet per year through the Southern Nevada Water System, which consists of both the Robert B. Griffith Water Project and the Alfred Merritt Smith Water Treatment Facility. The first stage facilities, completed in 1971, were limited to 132,200 acre feet per year. The capability of the first stage facilities are expected to be exceeded during this forthcoming summer peak season. There does not exist a feasible alternative potable water supply other than the second stage facilities.

Both the first and second stages of the Southern Nevada Water System have been a highly successful joint Federal, State, and local effort. Federal appropriation, together with State funding authorized by the Nevada Legislature, and the investment of local funds for the receipt and distribution of the water from the system were constructed in a coordinated and parallel effort.

Under the authority granted by the Nevada Legislature, the Colorado River Commission of Nevada has sold $60,000,000 worth of State General Obligation Bonds to finance the costs of the enlargement of the treatment facilities, which was completed on May 3, 1982. In addition, approximately $30 to $40-million of local funds have been expended by the water receiving entities in preparation of receipt of second stage water deliveries.

Each and every part of the Southern Nevada Water System has been coordinated and integrated to provide potable water deliveries to current and future residential, commercial and industrial consumers. No water from the Project is utilized for agricultural irrigation purposes.

From the above and in conjunction with our understanding that the Bureau of Reclamation has a capability of effectively and efficiently using $500,000 in Fiscal Year 1985, we again respectfully ask the Committee's support of this appropriation to complete the construction of the Robert B. Griffity Water Project.

RESOLUTION OF THE COLORADO RIVER COMMISSION OF NEVADA

84-1 RESOLUTION

WHEREAS, the Southern Nevada Water Project was authorized in 1965 by Public Law 89-292 to help meet the water needs of the area and to reduce the demands on an already overdrawn ground water basin; and

WHEREAS, Public Law 97-381 renamed the Southern Nevada Water Project in honor of Robert B. Griffith and said water project is hereinafter referred to as the Robert B. Griffith Water Project; and

WHEREAS, the First Stage of the Robert B. Griffith Water Project was completed in 1971 and currently delivers municipal water to the population center in Southern Nevada including Nellis Air Force Base, the City of Henderson, the City of North Las Vegas, the City of Boulder City and the Las Vegas Valley Water District; and

WHEREAS, the operational needs of this public water system to provide the additional potable water supply to the population it serves can only be accomplished by timely completion of the construction of the Second Stage of the Robert B. Griffith Water Project; and

WHEREAS, the State of Nevada has shared in the cost of this project by designing and constructing the State-owned water treatment plant which is an integral part of the total system and will operate in conjunction with the Second Stage of the Robert B. Griffith Water Project; and

WHEREAS, all Second Stage Federal funding will be repaid with interest; and

WHEREAS, funding has been provided in the Executive Budget under the Damage and Minor Construction portion of the construction program in the amount of $500,000 for continued construction of the Robert B. Griffith Water Project for Fiscal Year 1985;

NOW, THEREFORE, BE IT RESOLVED, that the Colorado River Commission of Nevada urges Congress to appropriate the Fiscal Year 1985 Executive Budget recommendation of $500,000 to complete the construction of the Second Stage of the Robert B. Griffith Water Project; and

BE IT FURTHER RESOLVED, that copies of this Resolution be sent to Senator Paul Laxalt, Senator Chic Hecht, Representative Harry Reid, Representative Barbara Vucanovich, Senator Mark O. Hatfield, Chairman of the Energy and Water Development Subcommittee of the Senate Appropriations Committee; Representative Tom Bevill, Chairman of the Energy and Water Development Subcommittee of the House Appropriations Committee; Governor Richard Bryan; Secretary of Interior William Clark and Acting Commissioner Robert A. Olson of the Bureau of Reclamation.

Adopted and passed on February 28, 1984.

Jack Lehman

JACK LEHMAN, CHAIRMAN

STATEMENT OF WILLIAM A. MEYER, PRESIDENT OF THE BOARD OF DIRECTORS, WILDCAT CREEK FEDERATION, INC., INDIANA

Mr. Chairman, Members of the Committee, thank you for this opportunity to include written testimony. I respectfully request that NO FUNDING, in any form or for any purpose, such as review, new studies, construction, land acquisition, be appropriated for the Lafayette Lake Reservoir, A U. S. Army Corps of Engineers project located on Wildcat Creek, east of Lafayette, Indiana.

I offer testimony in behalf of Wildcat Creek Federation, Inc., a voluntary citizens group. We believe we have broad based support for this request from local and state residents and officials.

The State of Indiana withdrew all support from the Lafayette Lake project in February, 1977. Congress withheld funding in FY 1977. Since then, no administration has requested funds for this reservoir. Lafayette Lake has been placed in "inactive status."

In 1982 the U. S. Army Corps of Engineers released a cost escalation on construction of Lafayette Lake to be $181,000, with a benefit/cost ratio of 0.5. In April of that year Corps spokesmen estimated that "the project would provide about $.40 for every $1.00 of cost."

Portions of Wildcat Creek in the reservoir "take area" have been designated SCENIC STREAM by the State of Indiana and are under the protection of the State.

In 1984 Tippecanoe County governmental units rezoned the artificial flood plain area provided for the planned reservoir into "forestry conservation" and "agriculture" designation. This allows for the building of single family dwellings and small subdivisions of not more than four lots. Already there is a substantial increase in building within the boundaries of the "take area." Five hundred residences and landowners would be a conservative estimate falling in this reservoir area. Officials of Tippecanoe County consider the Lafayette Lake Reservoir "dead" and are planning for orderly growth for this area.

The fiscal problems on both the State and Federal level are well-documented. President Reagan has asked states to assume more responsibility in cost sharing for federally funded projects, including water projects. Indiana does not wish to participate in the Lafayette Lake water project.

We ask the committee that no funding be included this year for Lafayette Lake.

Thank you for your time and attention to this request

STATEMENT OF L. SCOTT TUCKER, EXECUTIVE DIRECTOR, URBAN DRAINAGE AND FLOOD CONTROL DISTRICT

Pressures have been building in the Aurora, Denver and unincorporated Arapahoe County areas to construct drainage facilities in the Westerly Creek Basin upstream from the Lowry Air Force Base to solve many existing flooding problems and to allow future development to take place in an orderly fashion. However, the local interests involved have been unable to proceed with the development of the upstream drainage system because of the problem of passing the water onto and through the Air Force Base and ultimately into locally constructed channel improvements downstream from the Air Base.

The Corps of Engineers has recommended a Federal project for construction on the Air Base to include the Upper Lowry detention dam and appropriate inlet channels and outlet facilities, authorization of which would be provided by final passage of the Water Resources Development bills that have been reported respectively by the Committee on Public Works and Transportation of the House of Representatives and by the Committee on Environment and Public Works of the Senate. The Westerly Creek project is of considerable merit as documented by the Corps of Engineers, and it is important that the detention facilities on Lowry Air Force Base be constructed as soon as possible. To facilitate this effort I urge the inclusion of an item in the amount of $200,000 for continued planning and engineering in the Appropriation Bill for FY 1985, and thus avoid still further delays in obtaining urgently needed flood control improvements.

Your assistance in this regard would be very much appreciated.

STATEMENT OF MILES H. KAHL, ELIZABETH, ILL.

I am writing in regard to your hearings with the Corps of Engineers con-- cerning termination of Campsite leases along the Mississippi River between Guttenberg, Iowa and St. Louis, Mo. I hold a lease, which has been in my family for thirty years and strongly oppose the intentions of the Corps of Engineers terminating these leases in 1989.

The Campsite leasees along the Mississippi River take great pride in their cottages and maintain these areas at no cost to the Government or taxpayer. We police these areas, keeping debris picked up and proper disposal of same. We advocate and promote safe boating, water skiing, fishing and hunting. The Campsite leasees render countless assists to stranded boaters, fishermen, and hunters by towing powerless boats to Marinas, guiding lost fishermen and hunters, and in many cases providing heat and shelter to someone who capsized in cold water.

In my opinion, termination of these leases will benefit no one and I think it is very unfair.

Not only will I lose my investment, but the Government will be additionally burdened with added expense of trying to police and maintain these areas in the manner the Campsite leasees have been doing at no cost to the taxpayer.

I support HR3678 and HR2951. I hope you will give consideration to these matters during the hearings with the Corps of Engineers.

STATEMENT OF GOV. RICHARD H. BRYAN OF NEVADA

Your budget considerations for the coming fiscal year will include project funding for the feasibility phase of the Las Vegas Valley and Virgin River and Tributary (Muddy River) studies. The Corps of Engineers budget includes $200,000 for the former and $100,000 for the latter.

If funding is approved, the feasibility phase on these studies can begin immediately upon completion of the reconnaissance phase in March 1985. The feasibility phase will investigate various alternatives which can be employed as flood control measures in those areas recommended for further analysis.

We have had some severe flooding in Clark County in recent years so it is important to maintain the momentum in those Corps programs.

General Paladino of the Corps will be testifying on these issues. I would like to add my support to his testimony.

If you or your staff have further questions, please contact me or Pat Shalmy, Director of Clark County Comprehensive Planning at (702) 386-4181.

STATEMENT OF JIM MARSH, GREATER LAS VEGAS CHAMBER OF COMMERCE

The Greater Las Vegas Chamber of Commerce has been and continues to be alert to the needs for an adequate municipal and industrial water supply to the Las Vegas Valley and Boulder City areas in Southern Nevada. We have been advised that the Fiscal Year 1985 Executive Budget includes $500,000 under "Drainage and Minor Construction" for completion of the construction of the Second Stage of the Robert B. Griffith Water Project. We urge your support of this Fiscal Year 1985 appropriation.

The Greater Las Vegas Chamber of Commerce considers this water supply project to be vital to the economic, social and environmental well being of the current and future residents of Southern Nevada.

We request that this letter be made a part of the public hearing record. Your consideration in this matter will be sincerely appreciated.

STATEMENT OF ROBERT C. DICKINSON, PRESIDENT, NORTH LAS VEGAS CHAMBER OF COMMERCE

The North Las Vegas Chamber of Commerce has and continues to be alert to the needs for an adequate municipal and industrial water supply to the Las Vegas Valley and Boulder City areas in Southern Nevada. We have been advised that the Fiscal Year 1985 Executive Budget includes $500,000 under "Drainage and Minor Construction" for completion of the construction of the Second Stage of the Robert B. Griffith Water Project. We urge your support of this Fiscal Year 1985 appropriation.

The North Las Vegas Chamber of Commerce considers this water supply project to be vital to the economic, social and environmental well being of the current and future residents of Southern Nevada.

We request that this letter be made a part of the public hearing record. Your consideration in this matter will be sincerely appreciated.

STATEMENT OF ALBERT J. GRAY, DEVELOPMENT MANAGER, SABINE RIVER AUTHORITY OF TEXAS

During fiscal year 1984, the Bureau of Reclamation received funding for and initiated studies related to the proposed Big Sandy Reservoir in the upper Sabine River Basin of Texas. We certainly appreciate the role that you played in providing initial funding for this study.

The Sabine River Authority of Texas is an agency of the State of Texas charged with responsibilities related to controlling, storing, preserving and distributing the waters of the Sabine Basin in Texas for beneficial purposes. In responding to the needs of the cities and industries in our area, we have become increasingly aware that the upper Sabine Basin is becoming a water-short area and that new sources of water must be developed well prior to the year 2000.

We have requested that the Bureau expedite their study efforts on the Big Sandy Project and urge that you support an increasing funding level which will be adequate for this task. In order to prevent severe water shortages in the upper Sabine Basin, we feel that additional sources of water for this area will need to be completed by the mid-1990's.

We would request that this statement be entered as part of the record of the forthcoming hearings related to the proposed budget for fiscal year 1985. Thank you for your consideration of this request and please feel free to contact us if you should have any questions or need any additional information concerning the much needed Big Sandy Reservoir Project.

STATEMENT OF ELOF SODERBERG, GENERAL MANAGER, LOWER COLORADO RIVER AUTHORITY

The Lower Colorado River Authority is an agency of the State of Texas and has a responsibility for controlling floods and conserving for beneficial purposes the waters of the lower Colorado River.

As you know, the Bureau of Reclamation is now conducting an investigation in cooperation with the Authority and the Texas Department of Water Resources, to determine the feasibility of water resources developments in the Colorado Coastal Plains Project. The primary purpose of this project is be to meet the growing municipal and industrial water needs along the Texas Gulf Coast.

The President's budget request for Fiscal Year 1985 contains funds to complete Stage I and to initiate Stage II investigations for the proposed Colorado Coastal Plains Project. We feel that these investigations are vitally important in helping to solve water supply problems in this basin and express our strong support for this appropriation request.

CONCLUSION OF HEARINGS

Senator MATTINGLY. That concludes the hearings. The subcommittee will recess and reconvene at the call of the Chair.

[Whereupon, at 4:05 p.m. Thursday, April 5, the hearings were concluded and the subcommittee was recessed to reconvene at the call of the Chair.]

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